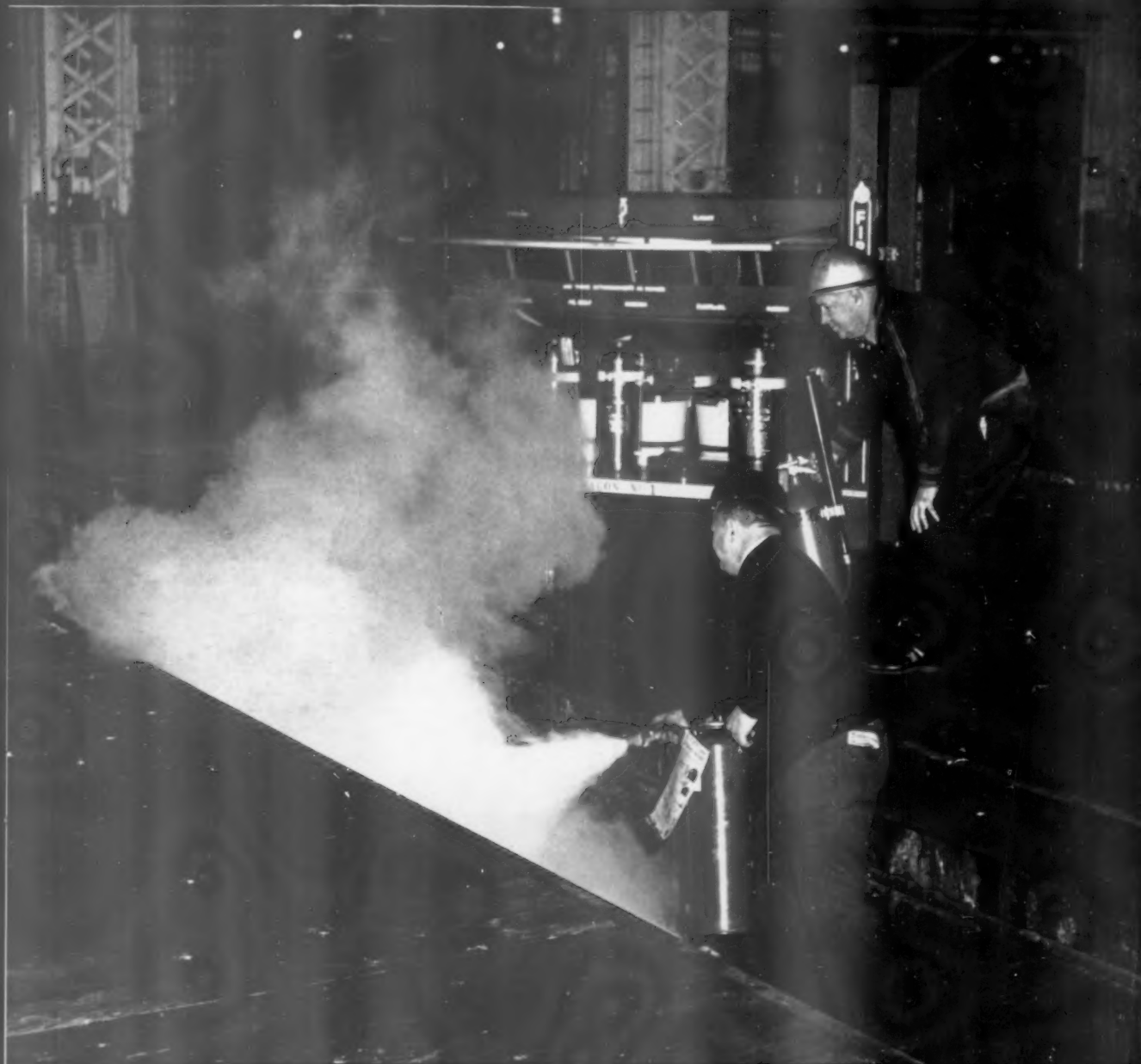


JULY 1956

# *National* **SAFETY NEWS**

They Keep in Training



ANNUAL FIRE PROTECTION ISSUE

# Announcing the M-S-A SOUNDSCOPE



A precision instrument  
that combines the  
functions of

- SOUND LEVEL METER
- OCTAVE BAND ANALYZER
- NARROW BAND ANALYZER

in a single compact unit,  
with self-contained  
power supply and integral  
electrical and acoustical  
calibration

Safety engineers and industrial hygienists faced with the task of measuring and analyzing noise conditions are quickly recognizing the contributions of the M-S-A Soundscope. With this *single instrument* they can plot the answers to (1) overall sound pressure levels, (2) sound pressure levels of components in octave bands throughout the audible spectrum, and (3) sound pressure levels in bands narrower than whole octaves.

This unit, based on a design developed for Mine Safety Appliances Company by Allison Laboratories, Puente, California, meets pertinent specifications of the American Standards Association for Sound Level Meters and Analyzers.

The overall Sound Level Section covers the range of 24 to 150 decibels. Overall attenuation can be varied through a range of 110 db. in 10 db. steps. The Analyzer Section, controlled by coupled knobs, measures sound levels in each of the seven octave bands from 75 to 9600 cycles. Analyzer attenuation can be varied through the range of 40 db. in 10 db. steps. The Narrow Band Analyzer function utilizes a set of continuously variable high and low cutoff filters. Knob control provides set-

tings of constant percentage band widths for fine analysis.

The compactness and extreme portability of the M-S-A Soundscope make it ideal for applications requiring many readings at different locations, as in the plotting of noise-level contour maps.

Our new bulletin gives complete information. Write for a copy.



Fabric luggage cover with shoulder straps provides protection  
... facilitates carrying.



Call the M-S-A man on your every safety problem  
... his job is to help you



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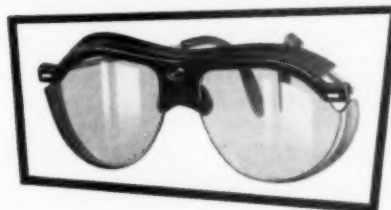
*if you checked **YES**, you need*

## VISOR-TUC SAFETY SPECTACLES

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Shatter-proof, heavy-duty lenses meet Federal Specifications for the "drop ball" and "drop needle" tests.

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# National SAFETY NEWS

Published monthly by National Safety Council

Vol. 74, No. 1

JULY, 1956

THE COVER: Mobile equipment for fighting many types of fires is an important part of a plant's fire defenses. This emergency wagon, with extinguishers for all types of fires, is also equipped for other contingencies and men are trained in necessary procedures. (Photo by the Reading Co.)

## EDITORIAL

### 17 The Destroyer

## FEATURE ARTICLES

- 18 What the States Should Do in Industrial Safety—  
*Arthur B. Langlie*
- 20 Legislating Atomic Health and Safety—*Munroe F. Pofcher*
- 22 Testing for Safety Also Needs Safeguarding—  
*Frank McGinnis*
- 24 How We Hear . . . And How Noise Affects Our Hearing—  
*Leo G. Doerfler, Ph.D.*
- 26 Dust on the Slide Rule (Diary of a Safety Engineer)—  
*Bill Andrews*
- 27 Congress Plans Taking Shape
- 31 Cleaning Small Containers That Have Held Combustibles—  
*Data Sheet D-432*
- 72 Eyebolts for Angle Load Safety—*M. F. Biancardi*
- 76 Excavations Needn't Be Deathtraps—*Robert Wendell*
- 80 An Industrial Community Organizes for Safety—  
*Hedwig S. Kuhn, M.D.*
- 84 Puerto Rico Stages Farm Safety Month
- 86 Fail-Safe Monitoring
- 104 Got No Distinction—*Robert D. Gidel*

## FIRE PROTECTION SECTION

- 38 Early Detection Cuts Fire Losses
- 40 Inspect and Protect
- 43 Foes of Fire
- 48 Training in Mobile Fire-Fighting Equipment—  
*Frank C. Kluiber*
- 58 Controlling Those Static Imps
- 59 Plant Protection Organization

## DEPARTMENTS

- |                                    |                             |
|------------------------------------|-----------------------------|
| 4 The Accident Barometer           | 82 Showmanship in Safety    |
| 6 The Safety Valve                 | 89 Calendar Contest Winners |
| 10 Around the Compass              | 96 The Safety Library       |
| 12 Small Business and Associations | 101 Coming Events           |
| 15 Consultation Corner             | 104 Personals               |
| 28 Sammy Safety's Notebook         | 107 Obituary                |
| 10 Wire from Washington            | 118 Film News               |
| 12 The Lighter Side                | 120 Safety Off the Job      |
| 64 Voice of the Reader             | 133 Safety Posters          |
| 68 For Distinguished Service       | 139 New Safety Equipment    |
| 70 Accident Post Mortems           | 147 Trade Publications      |
| 74 Industrial Health               |                             |

Statements and opinions advanced in signed articles are personal expressions of the authors, not necessarily those of the National Safety Council.

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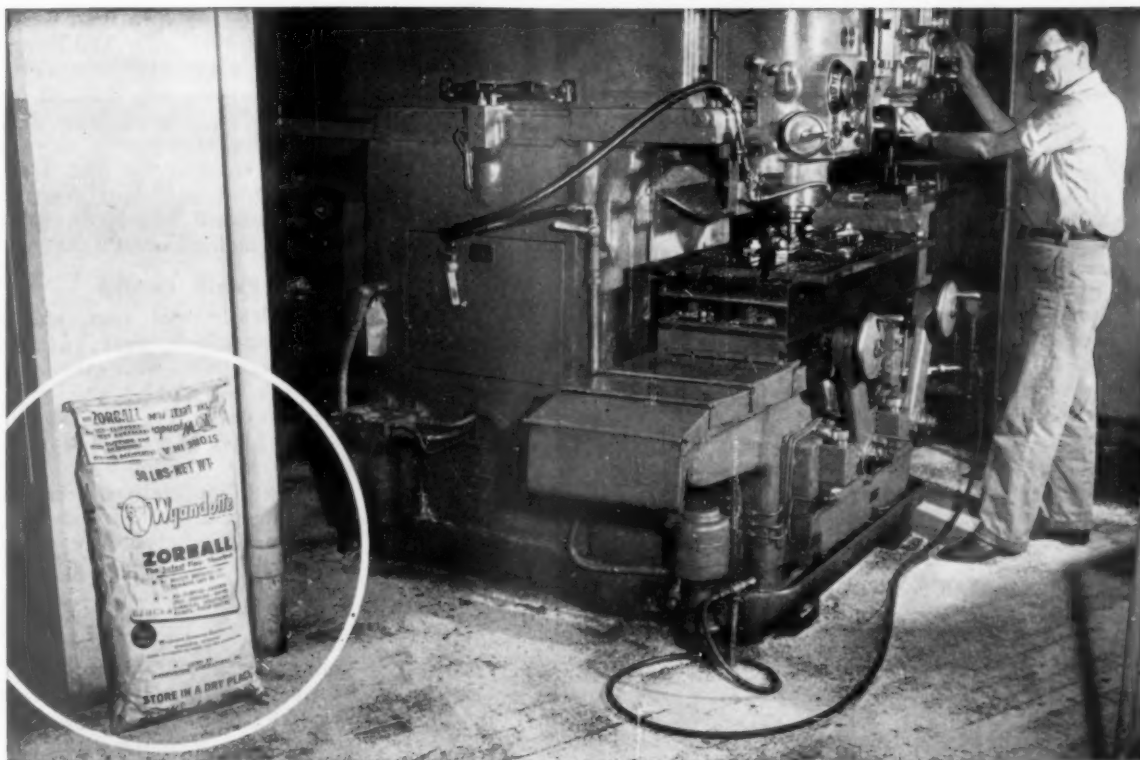
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Here, where some of America's newest planes are turned out for the Armed Forces, Martin, Baltimore, uses Wyandotte ZORBALL to make their factory floors skid-free and safe.

# ZORBALL

**keeps factory floors  
skidproof, safe for  
Martin, Baltimore**

In their plant operations, where powerful machines and tools are used to produce planes for the Armed Forces, the Martin Company uses Wyandotte ZORBALL as their floor absorbent for protection against slippery floors and fires caused by oily, combustible wastes.

Wyandotte ZORBALL is the safest, lowest use-cost, all-purpose floor absorbent on the market today! ZORBALL is highly effective in absorbing a wide variety of liquids, yet will not break down and dust, "mud," pack or become slippery—even under traffic.

Investigate the use of ZORBALL for your own needs. Find out for yourself how truly outstanding it is in giving you nonskid surfaces. Contact your nearest Wyandotte representative, or write us direct, for further information. In addition to ZORBALL, Wyandotte offers a complete line of metal cleaners, paint strippers, aluminum brighteners, and emulsion cleaners to serve you. *Wyandotte Chemicals Corporation, Wyandotte, Michigan. Also Los Nietos, California. Offices in principal cities.*



**Wyandotte CHEMICALS**

J. B. FORD DIVISION



New XP6M-1 Martin SeaMaster

# THE ACCIDENT BAROMETER



Prepared by the Statistics Division,  
National Safety Council

THE DEATH TOTAL for March was approximately 7,000, an increase of 3 per cent over March last year. There was an increase in deaths from motor-vehicle accidents, a decrease in work and no change in home and public non-motor vehicle.

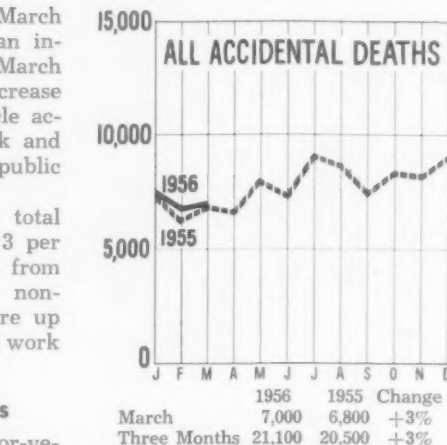
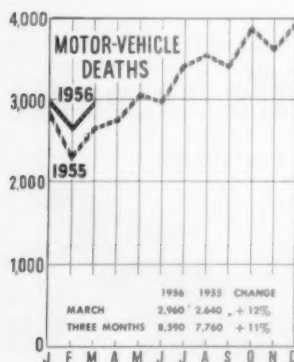
The three-month death total was about 21,100, also up 3 per cent over 1955. Deaths from motor-vehicle and public non-motor-vehicle accidents were up while deaths from home and work accidents were down.

## Motor-Vehicle Deaths

The March total of motor-vehicle deaths was 2,960, an increase of 12 per cent over March last year. Compared to 1954, it was an increase of 18 per cent.

Deaths for the three months totalled 8,590, an increase of 11 per cent over 7,760 in 1955. The three-month death rate per 100,000 vehicle miles is not available at this time, but the two-month rate was 6.1, an increase of 2 per cent over 1955.

Of the 47 states reporting for three months, 15 had fewer deaths than last year and 32 had more deaths. Reporting cities with populations of more than 10,000 had an increase of 6 per cent for March and 12 per cent for the first quarter of 1956.



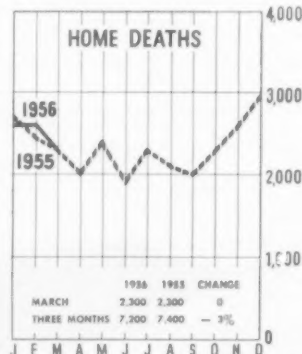
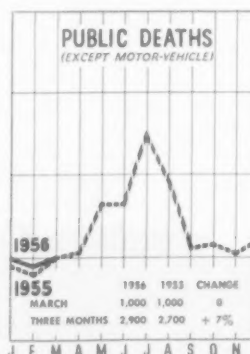
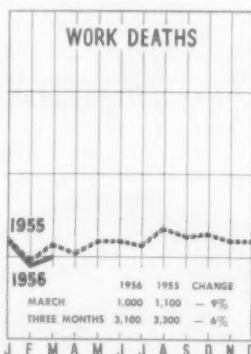
Regional changes from 1955 in the three-month death totals were:

North Atlantic	+12%
South Atlantic	+12%
North Central	+7%
South Central	+9%
Mountain	+20%
Pacific	+18%

## Work Accidents

Deaths from work accidents totalled about 1,000, or 100 fewer than occurred in March last year. The total for three months was 3,100, a decrease of 6 per cent from 1955.

The March frequency rate for plants in eighteen sectional accident prevention contests conducted by the National Safety



Council was 5.40, an increase of 7 per cent over 1955. The March rate for plants in community council contests was 5.79, an increase of 25 per cent over last year. The three-month rate in sectional contests was 5.42, a reduction of 1 per cent; in community council contests the rate was 5.66, an increase of 9 per cent.

## Public Deaths

The death total from public non-motor-vehicle accidents in March was 1,000—about the same as March last year.

Deaths during the three months totalled 2,900, or 7 per cent more than in 1955. Most of the increase occurred in fatal falls, but deaths from burns, drownings and firearms accidents also were more numerous. Aside from a small reduction in deaths of young people 15 to 24 years and no change in deaths of children under 5 years old, all age groups showed some increase over last year with the largest change recorded for persons 65 years and over.

## Home Deaths

March deaths from home accidents numbered approximately 2,300, no change from March last year.

The three-month death total was 7,200, a decrease of 3 per cent from 1955. There were moderate reductions in deaths from poisonings and firearms accidents and small decreases in falls and mechanical suffocation deaths. Most of the reduction occurred among young people 15 to 24 years old but deaths of children under 5 and persons 45 to 64 years and 65 years and over also were fewer.



# Stonehouse

## INDUSTRIAL TRAFFIC SIGNS



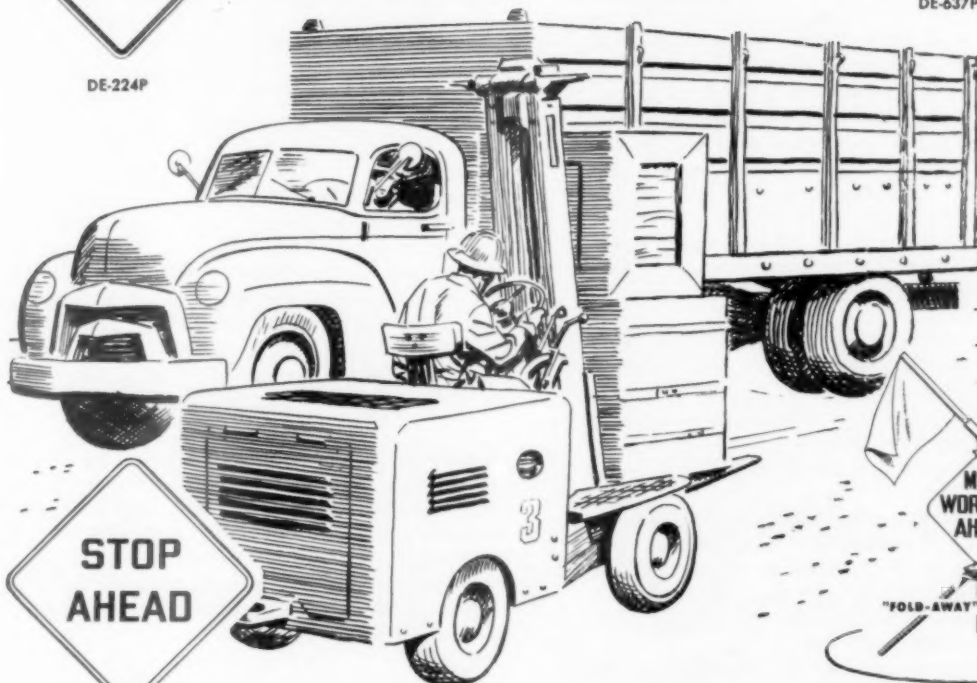
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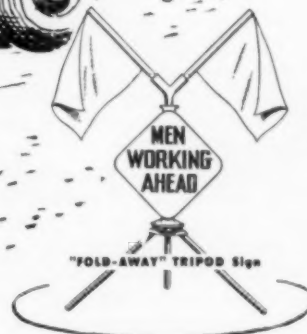
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"FOLD-AWAY" TRIPOD Sign

INDUSTRIAL TRAFFIC . . . with its numberless trucks and other automotive vehicles, CAN be controlled and made safer for everyone.

Protect them . . . with

### STONEHOUSE TRAFFIC SIGNS For Accident Prevention

Just a few of these signs are shown here. Many more are available, in stock or special wordings, for prompt shipment.

- Send for Stonehouse Industrial Traffic folder. It's new, complete . . . free on request.

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MANUFACTURERS

"Signs Since 1863"



ACCIDENT PREVENTION • *steel* SIGNS IN STANDARD COLORS AND DESIGNS



# THE SAFETY VALVE



*Nothing human is alien to me*

—TERENCE

## Transplanted Talent

Every year thousands of men are lured by jobs in far away parts of the country. Often an employer spends a lot of money to bring a man from a distant city. The new man may be just what the boss wanted, but if the wife doesn't like the town the investment is likely to go sour.

Writing in *Printer's Ink*, Walter A. Lowen, placement specialist, tells of a few examples.

One felt he was let down by a boss who had painted an alluring picture of the job and then had kept after him to bring his family. Nobody tipped him off on real estate and he rented an apartment (none too plentiful) in an undesirable part of the town. Nobody in the company made any attempt to welcome them or make them feel part of the social life.

The wife got lonesome and grew to hate the town. She went back east taking their son with her. Their marriage was headed for the rocks unless he went back too.

Another case reported by Mr. Lowen was that of a brilliant young advertising executive living in a small town in another midwestern state. He had been hired because he and his wife came from the Midwest. They were both graduates of eastern universities and wanted a small town life to raise their family.

During the first two weeks they were invited to a few homes and then left to wither on the vine. They were as socially acceptable as any young American couple. But the town was full of cliques. The company dominates the town and is reputed to be rather paternalistic.

That's a picture that is all too frequent in the business world. And the solution, like all involving personalities, isn't simple—not as simple as Mr. Lowen implies. Certainly, the boss and fellow workers should go the limit in making the newcomer feel at home. But even that may not be enough.

A person may be "socially acceptable" (whatever that means) yet not necessarily congenial or adaptable to new surroundings. More and more companies are realizing that when they hire a man they take on his family, too. Some of them now include the wife in the pre-employment interview.

Establishing roots in a new community isn't easy. I can remember when we went suburban nearly 23 years ago. For a few months we were rather lonesome. The phone, which had been too busy in our city apartment, was strangely silent. People out there had their own little circles.

Two things helped us. My wife was a good musician and a willing worker on church and community jobs. And before long I got roped in on a few local chores.

And what helped us most of all in the earlier months was the friendly welcome from the families of two fellow staff members already established there. Employment can be a bond of friendship.

## Progress

DURING THE PAST YEAR a wide stretch along the North Western's Wisconsin Division has looked like the war zone as wreckers were clearing the way for a new superhighway. Unfortunately, they were wrecking homes as well as buildings—homes where some people had lived most of their lives . . . And the old 4-6-2's on the suburban trains have gone to the locomotive graveyard. Unromantic diesel switchers are now hauling the commuters. Wonder how an old-time engineer feels at being assigned to one of these? Probably like a cavalryman whose horse has been replaced by a mule . . . At last the venerable and historic Pullman Building is coming down. I remember its antique elevators with red plush seats and the famous Tip Top Inn that occupied the top floor before the depression.

## In This Issue

MANAGEMENT, labor, the states and the Federal Government are recognizing their respective parts in preventing accidents on the job. The President's Conference on Occupational Safety, held in Washington May 14-16 again brought their representatives together in profitable discussion. Their objectives were clearly and forcefully interpreted by Governor Arthur B. Langlie of Washington, whose address is reprinted here. (Page 18)

\* \* \*

Another problem engaging the attention of both industry and government is the regulation of atomic energy. The states are short of technical man power to promote standards and police developments and the industries concerned have little to spare. A working partnership between the two, with increasing self regulation and support of training programs, is urgently needed. (Page 20)

\* \* \*

Public safety depends upon the tests to which modern equipment using the newer sources of energy are submitted. And these tests in turn demand more exacting methods of protection for the men who make them. (Page 22)

\* \* \*

New processes, new materials, larger plants, more extensive fire areas, and an occasional disastrous fire are turning the spotlight increasingly on industrial fire protection. Many phases of fire protection are presented in a special section of this issue. (Page 37)

*Carman Fisk*

# you name the hazard

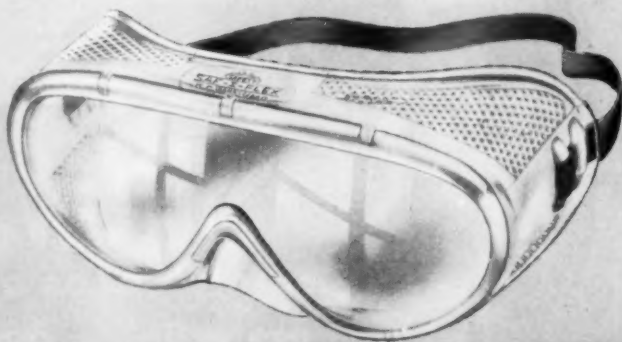
- IMPACT
- DUST
- GLARE
- CHEMICALS

then select the  
**USSSCO all-plastic  
EYEWEAR**

best suited to meet your needs



**SAF-I-SPEC** Maximum "spectacle-type" protection against impacts, plus smart, modern styling. Weighs less than an ounce. Rugged frame in choice of colors, bronze or slate blue. With or without side shields. Clear or green replaceable lens.



## **SAF-I-FLEX Series 28**

All-purpose eye protection against impacts. Fits over most personal glasses. Soft vinyl frame—clear or green replaceable lens.



**SAF-I-CHEM** Maximum eye protection against acids, alkalis, chemical splashes, dust, impacts. Frame of soft vinyl, yellow or clear.

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Guaranteed not to fog. Maximum eye protection against impacts, with new "wrap-around" metal mesh ventilation (no air traps). Extra wide vinyl frame fits over all personal glasses. New correct pantoscopic angle of lens for full vision. Clear or green lens.



## **GENUINELY COMFORTABLE**

Here is the most comfortable eyewear that money can buy! We guarantee that all eyewear shown on this page, when properly adjusted, will be truly comfortable.

All lenses replaceable without tools.

Pioneers in Modern  
Industrial Eye Wear

All models meet Federal specifications for Optical Qualities, Impact Resistance, and Strength of Materials.

USSSCO products are developed, manufactured, and sold direct to the user by the United States Safety Service Company, through a staff of trained, full-time service engineers. Look in your phone book Yellow Pages for nearest sales office, or write us in Kansas City.

# **UNITED STATES SAFETY SERVICE CO.**

BRANCHES IN PRINCIPAL INDUSTRIAL CITIES

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**DOW CORNING**

*Silicones*

# **make safety more comfortable to**

## **LEATHER PROTECTED WITH SYLFLEX\***

- keeps water out and still permits the breathing action necessary to good foot hygiene.
- resists chemicals and other corrosive substances.
- stays soft and flexible — keeps feet more comfortable.
- makes safety shoes wear much longer.

\*T. M. Dow Corning Corporation



### **Here's proof of SYLFLEX performance**

After 6 weeks of exposure to hydrochloric acid in a chemical plant, the work shoe at right is ruined. Shoe made of leather treated with SYLFLEX, at left, is just beginning to show signs of breakdown.

These leading manufacturers offer safety shoes of Sylflex tanned leather.

- ★ **Iron Age Division** — H. Childs & Co., Inc.
- ★ **Thom McAn Division** — Melville Shoe Corp.
- ★ **Lehigh Safety Shoe Co.**  
— Division of Endicott Johnson
- ★ **Hy-test Division** — International Shoe Co.
- ★ **Record Industrial Co.**
- ★ **Holland-Racine Shoes, Inc.**
- ★ **Milwaukee Shoe Co.**

**DOW CORNING SILICONES HELP YOU**

# equipment wear



## SIGHT SAVERS keep safety glasses clean and safe

*Install Sight Saver Cleaning Stations  
at convenient locations  
throughout your plant and offices*

(value \$2.50 ea.) **FREE** with your  
purchase of Sight Saver Tissues.

*Distributed through leading  
Safety Supply Houses.*



*first in silicones*

## PUT SAFETY FIRST!

**DOW CORNING  
CORPORATION**  
Midland, Michigan

Sight Savers are the silicone-treated tissues known and preferred by millions as the easiest, most efficient way to clean and polish eye glasses. Put Sight Savers at everybody's fingertips—they wipe away the best excuse ever given for not wearing safety glasses . . . improve morale and efficiency.

- Compact, space-saving—overall size 3½ x 8".
- Easy to install—either screw or adhesive mounting.
- Easy to use—no fuss, no fluid—dispenses just one ready-to-use 3 x 7" tissue at a time.
- Easy to maintain—just insert new refill of Sight Saver No. 65 tissues as needed.
- Attractive looking—steel construction, fool-proof mechanism.
- Available in 3 colors—safety green, white and black.

**DIRTY** glasses are **DANGEROUS** • **CLEAN** glasses reduce accidents, improve workmanship • **SIGHT SAVERS KEEP GLASSES CLEAN AND SAFE.**



# AROUND THE COMPASS



ACTIVITIES • PROGRAMS • EVENTS

Compiled by Field Service Department, NSC

## "The Town That Hates Accidents"

"The town that hates accidents" is the new name that has been given St. Joseph, Mo. It is the title of a story by Jack Naylon in the Ford Motor Company's book *Freedom of the American Road*. A motion picture of the same name is being shown throughout the country at meetings of hundreds of different groups and on television. The St. Joseph story is featured in the movie.

The Ford book and film, made to promote organized citizen action for traffic safety, are making St. Joseph known as "the town that hates accidents." Walter Ladd, director of the St. Joseph Safety Council, said, "Our safety program has had only one objective—to prevent accidents to our citizens. But now the program has developed a by-product of favorable publicity for the city that money could not buy."

## Inter-Plant Contest Awards

Five affiliated councils of the New Jersey State Council honored winners in their respective areas in the 28th Annual State-wide Interplant Safety Contest. The Newark Safety Council honored the Essex County winners at Military Park Hotel, May 8; Monmouth County winners were honored at a dinner sponsored by the Monmouth County Safety Council May 22; Hudson County Safety Council honored the winners of that county at a dinner May 23; Morris County winners were honored by the Morris County Safety Council May 28, and Union County winners by the Union County Safety Council May 29.

The contest is conducted annu-

ally during the first 13 weeks of the year by the Department of Labor and Industry in cooperation with the New Jersey State Industrial Safety Committee.

## Reyburn Hoffmann Retires

After serving more than 25 years as secretary-manager of the Safety Council of Greater St. Louis, Reyburn Hoffmann retired June 1, 1956. He will be succeeded by William F. Yorger, public safety supervisor of the Council.

Mr. Hoffmann is a graduate of the University of Illinois. Prior to his appointment to the Safety Council, he served as traffic engineer of St. Louis. He also served on Traffic Engineering Committees of the National Safety Council.

## Over the Top

The \$440,000 goal to finance the New Jersey State Council's next three-year accident-prevention program has been over subscribed by private enterprise and will exceed \$460,000, announced Johnson and Johnson's President George F. Smith, tri-annual fund chairman. This over-subscription was compared to the last tri-annual campaign which produced \$390,000. Mr. Smith declared, "With more money to do a better job, New Jersey should be the safest state in the union."

"Over 800 private industrial firms, financial institutions and other business concerns have made possible this achievement. It is free enterprise responding to an appeal for better safety in the home, farm, highways, on the job, and fire prevention."

The state committee, headed by Mr. Smith, which conducted the campaign is comprised of 56 lead-

ers of business and government. The campaign was carried out by meetings held in various cities in New Jersey and in New York City with prospective contributors who were addressed by Mr. Smith, New Jersey's Governor Robert B. Meyner, and others.

"The New Jersey State Safety Council is pointing the way for greater opportunities for a safer New Jersey in the years ahead. The business leaders of our state can be proud of their contribution and the citizens generally should salute this fine example of public service," emphasized Mr. Smith.

## Police Honored

Sponsored by business and industrial leaders, the Fort Worth Safety Council and the Mayor's Traffic Committee, the Fourth Annual Appreciation Dinner honoring the Fort Worth (Texas) Police Department was held in the Crystal Ball Room of the Hotel Texas March 29. Members of the Fort Worth Police Force, their wives and distinguished guests attended. Safety Council awards were presented to outstanding officers and the Amon Carter Award was presented to the officer of the year. Charles W. Needham, president, Fort Worth Safety Council, presided.

## Western Massachusetts Award Banquet

The 33rd Annual Award Banquet presented by the Safety Council of Western Massachusetts was held May 8 at the Sheraton-Kimball Hotel, Springfield, Massachusetts.

Industrial and Fleet Safety Awards were presented, with 28 companies completing the year

—To page 128



**S-4377 Moccasin-toe Jaguar.**  
 Tan. New, low-cut three eyelet  
 model. Leather lined steel toe box.  
 Lightweight Neoprene  
 Crepe sole and heel.  
 B 8-12 D 5-12  
 C 7-12 E 6-12



## How Thom McAn makes it easier for you to sell safety to your men

**Y**OU KNOW how hard it can be to get some men to wear safety shoes—especially in summer. They balk at wearing heavy, hot, uncomfortable safety shoes. And we don't blame 'em.

But look at the new Thom McAn above. It's light, cool and comfortable with the modern lines of Thom McAn's famous Jaguar dress shoe. Fact is, you'd have a hard time guessing this was a safety shoe unless you knew that the swept-back moccasin toe concealed a rugged steel toe box.

You'll find it easier to convince your men that foot safety is important—when it's also comfortable and smart with Thom McAn, the best-selling shoe in all America.

**NOW SOLD THREE WAYS:** **1.** Directly from Thom McAn warehouses for plant inventory, or

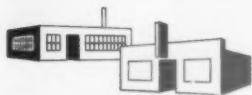
on mail-order basis. **2.** Through Thom McAn's special In-Plant Fitting Plan. **3.** At Thom McAn Shoe Stores. Send today for details on Thom McAn's special money-saving plans—plus a full description of the new Thom McAn Safety Shoe line. Write: Thom McAn Safety Division, 25 West 43rd Street, New York 36, N. Y.

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**Thom McAn**  
**SAFETY SHOES**

A Division of the Melville Shoe Corporation

# SMALL BUSINESS and ASSOCIATIONS



By A. M. Baltzer and Robert D. Currie

Small Business Program Staff, National Safety Council

## Consultants

Consultants supply specialized services that companies themselves cannot or do not choose to handle. Technical consultants are available to discuss your problem with you at no obligation. However, once they start to work on your problem, it begins to cost the company money. This is as it should be.

What about a safety consulting service? There are many organizations adequately equipped to provide a service at no extra cost. Help is only as far as your nearest telephone. Here are a few sources of help for smaller firms:

**Associations.** Many associations carry on some safety activity. If they don't know the answer, they probably know of a member that does.

**Insurance carriers, casualty and fire.** Most companies employ a staff of engineers who are equipped to provide a safety service on-the-spot, right in your plant.

**The National Safety Council and local safety councils.** The NSC is a clearing house of safety information. Staff engineers and other specialists are available to answer your questions. Local councils are in close touch with professional safety people in the area—and they are ready to help.

There are no secrets when it comes to preventing accidents. There are many sources of free information. Use them. Get your business groups, clients, customers and neighbors to use them.

## For a Job Well Done

The National Safety Council's "Citation for Distinguished Service to Safety" has been awarded to H. F. Reinhard, secretary, *International Acetylene Association*. This honor was given to him in recognition of his work as chair-

man of the Council's Small Business and Associations Committee and other safety activities. He is also manager of Union Carbide and Carbon Corporation's Safety Code Department.

Mr. Reinhard was instrumental in the formation of the Small Business and Associations Committee and was responsible for coordinating and administering many of its functions. His resignation as committee chairman ended a five-year period of executive work. He will, however, continue to take part in the activities of this committee as chairman of the Program Subcommittee.

## 65 Attend NIC Meeting

A special meeting for National Industrial Council affiliates was held May 14 in connection with the President's Conference on Occupational Safety. Sixty-five safety representatives of trade associations, state and local manufacturing associations, employer groups, insurance companies, and safety organizations reviewed

safety activities since the first President's Conference in 1949 and exchanged helpful hints on their own accomplishments.

John Seeton of the *Pennsylvania Manufacturers Association* cited gains in focusing attention on non-manufacturing accident problems. Robert H. Ferguson of Republic Steel Corporation discussed the importance of the President's Conference recommendations, particularly those dealing with small firms and stimulating community interest. Other association and safety leaders commented on the progress made as a result of the conferences.

## What It Costs To Land an Order

A survey conducted by the Sales Executives' Club of New York among 228 companies supplying the industrial market revealed the average cost per call by salesmen is \$17.24. "Cold" calls average \$187.00.

This seems expensive to us. It must take quite a few orders, too, before you can start counting actual profit. It is ridiculous to take the profit derived from a few salesmen to pay for accidents. How long does it take one of your salesmen to bring in enough profit to pay for an average compensation case of \$396.00?

## Shorts

The *Western Oil and Gas Association* again is sponsoring regional safety meetings that have helped cut the California oil industry's accident rate sharply. In last year's four conferences 1,756 operating men from 106 companies attended.

The *Natural Tool and Die Manufacturer's Association* recently ordered 1,100 copies of our *Plus Cost of Accidents* booklet. It's mass distribution of material such as this that helps prevent accidents.




**H. F. REINHARD** (left) discussing with Carl H. Hageman, manager of Industrial Relations, Union Carbide and Carbon Corporation, the activities that won for Mr. Reinhard the Citation for Distinguished Service to Safety.



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TO MANAGEMENT

\* Ordinary shoes  
are costing  
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in your safety shoes . . . ranging from the finest  
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Employers have learned the value of putting Coppus Blowers and Ventilators on the job . . . in confined areas and near furnaces or hot processes. The men work faster, do better work, work longer without fatigue — and appreciate the more comfortable working conditions.

Give some thought now to the "hot spots" in your plant. There is a

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| <input type="checkbox"/> in tanks, tank cars, drums, etc.   | <input type="checkbox"/> on steam-heated rubber processes. | <input type="checkbox"/> general man cooling.   |
| <input type="checkbox"/> in underground cable manholes.     | <input type="checkbox"/> on boiler repair jobs.            | <input type="checkbox"/> around cracking stills.  |
| <input type="checkbox"/> in aeroplane fuelages, wings, etc. | <b>COOLING:</b>  | <input type="checkbox"/> exhausters, welding fumes.   |
| <input type="checkbox"/> on coke ovens.                     | <input type="checkbox"/> motors, generators, switchboards. | <input type="checkbox"/> stirring up stagnant air wherever men are working or material is drying. |
|   | <input type="checkbox"/> wires and sheets.                 |   |

NAME.....

COMPANY.....

ADDRESS.....

CITY.....

(Write here any special ventilating problem you may have.)



# CONSULTATION CORNER

By George MacDonald, Industrial Department, NSC

**Got a problem in accident prevention or occupational hygiene? Questions are answered by mail, a few of general interest being selected for publication here**

## Transporting Workers

**Question.** Recently, we were forced to use enclosed trucks for transporting workmen. The rear doors open from the outside only, and a solid partition exists between the truck body and the driver.

We are worried about rear-end collisions, turnovers, stuck doors, entrapment of the workers inside, and possible fire. What can we do to correct this situation and still use the same trucks?

**Answer.** Install a panic release device and pressure bar on the inside of the rear doors (similar to exit fire doors.) Pressure against the bar by the men inside would release the locking device and allow the doors to swing open.

Another method is to install a mechanical or take-apart release similar to the devices used in walk-in refrigerator trucks. This equipment should be located so that the workmen sitting down will not lean against it and accidentally release the doors. No one should be allowed to tamper with this emergency equipment. No outside locks should be installed unless they can be released from within.

Glass panels (safety glass) should be installed at the sides of the truck or in the rear doors. This will allow vision and light to enter.

As an added precaution a second emergency exit can be installed by providing a removable or kick-out panel on the side of the truck and it can be used in case the rear doors become blocked.

Some means of comfort ventilation should be provided by installing adjustable roof and floor level vents or louvers.

If trucks are used at night, elec-

tric lights should be installed inside and connected to the regular truck lighting system.

Benches should be installed in the truck and anchored to the floor so they won't move or tip over from movement of the truck. The seating capacity should not be exceeded and nobody should be allowed to stand.

If smoking is allowed, good ventilation should be provided. It is suggested that sheet metal be laid on the floor and a metal container with sand for extinguishing cigarettes be placed in the corner.

By all means, a portable fire extinguisher should be available. A recommended type is a water-filled unit containing a carbon dioxide cartridge which releases and provides pressure to expel the water. Do not use carbon tetrachloride or carbon dioxide extinguishers in a confined area without the best of ventilation.

Install a push button inside the truck body connected to a buzzer in the cab. A set of signals should be established between passengers and operator. A first-aid kit should be located in the truck,

either in the cab or mounted on the wall inside the body.

The rear end of the truck should be striped with high visibility yellow paint or reflecting tape. The red tail light should be checked to see that it is operating and should be located where it can be seen easily.

In the United States each state has its own local code and I believe that there could be some restrictions in transporting workmen in enclosed trucks. You might check your own local ordinances before you start converting your present trucks.

## Fusible Links on Doors

**Question.** We want to install fusible links on many of our swinging type doors. At the present time all of these doors are equipped with a good liquid door closer. Is there any way we can use this same equipment?

**Answer.** Yes, a special link incorporated in the arm mechanism melts at 160-165 degrees. Thus, in case of fire, closes the door to isolate the danger area. These closers are listed by Underwriters' Laboratories for strategic fire doors.

In this case, why not simply equip your door closers with an approved fusible link hold-open arm designed to do the job?

This would be the easiest remedy and would have the additional advantage of optional use to hold open or not as required, with adjustable hold-open position.

## Static Electricity On Clothing

**Question.** We have purchased vinyl chloride-acrylonitrile fiber uniforms for our laboratory personnel. This material was selected because of its high resistance to acids and alkalis. However, we are experiencing buildup of static electricity on this clothing. We are concerned about the possibility of electrical discharges between the personnel and equipment in the presence of laboratory vapors causing a fire and/or explosion.

Could you suggest a method for  
—To page 128



"Don't use that injured arm any more than you have to."



# HY-TEST's MOST POPULAR SAFETY SHOE



**Now**

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**H222**

Brown glove upper;  
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prene) sole and heel;  
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-  **Low-Quarter Comfort**
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Yes, the Leader now has a companion oxford! HY-TEST's new H222 features lace-to-toe design, assuring perfect fit and adjustability to any type foot. Like the popular H922, it fills a very definite need and at the same time adds another fine pattern to the more than 80 styles of HY-TEST Safety Shoes "Built for the Job". H222 and all HY-TEST Safety Shoes are made with the world-famous Anchor Flange Austempered Steel Box Toe.

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JULY 1956

## **The Destroyer**

**F**IRE DESTROYED property valued at \$885 million during 1955, according to estimates by the National Board of Fire Underwriters. Twenty years ago the estimated total loss was \$250 million.

Inflation has swelled the losses, of course, but it does not tell the whole story of the increase. More property is being destroyed. And fire losses with their destruction of irreplaceable assets are adding their share to the spiral of inflation.

Every building destroyed can be replaced only at a much higher cost—if it is rebuilt. The sad truth is that many a burned-out business dies in the flames.

If the NBFU estimates constituted the whole loss, the situation would not be so serious. Rust, corrosion and rot destroy millions of dollars worth of property each year. Insects and diseases destroy many square miles of timber each year. But only a few conservationists get excited about this gradual and unspectacular destruction.

Then there is the loss of life. Last year 6,300 persons in the United States died of burns, of whom perhaps 2,000 lost their lives in accidental ignition of clothing, with little or no attending property damage.

Official fire statistics do not take into account the destruction of intangible assets which can not be measured in dollars and cents. In business and industrial fires the destruction of intangibles often exceeds the loss of structure and stock. Loss of records, customers and credit standing do not appear in statistics.

Insurance can replace buildings and stock but business is built on continuous service to customers. After a prolonged shutdown on account of fire it must reenter the commercial world practically a new enterprise.

Insurance is an indispensable part of modern life. Without it, business and industry would be in a most shaky position. But in fire protection as in accident prevention, insurance sometimes gives the insured an unwarranted feeling of security and complacency.

Although many fires are reported as of "unknown" origin, the causes are well known. Investigation of disastrous fires invariably reveals failure of men, or equipment, or both. A thorough inspection of industrial and commercial buildings in most communities would reveal plenty of potential conflagrations just waiting for the right combination of circumstances.

Fire Prevention Week—October 7 to 13 this year—is still months away, but it is not too soon to start getting ready to take part in the nation-wide campaign, under the sponsorship of the National Fire Prevention Association. And certainly, tightening the plant's defenses against fire needn't wait for an annual campaign.

# What the States Should Do in Industrial Safety

By THE HONORABLE  
ARTHUR B. LANGLIE  
*Governor of Washington*



This article is a summarization of Governor Langlie's extemporaneous address before The President's Conference on Occupational Safety, Washington, D. C., May 14-16, 1956

THE physical hazards of industry are potentially greater than ever before. Most advances in machinery and methods are designed primarily to accomplish more work at less expense. The tractor and grader are more dangerous than the team of horses. The electric power line and motor involve more risk to life and limb than the water wheel. The deeper mine, the taller building, the bigger saw, the faster machine tool multiply not only productivity, but also the perils of the worker.

But increased productivity is self-defeating if purchased at too great a cost in broken bones and bodies. The natural resource which most needs conserving is our human resource. And so it is that every advance in productivity which can be achieved by engineering genius must be matched by a like advance in safety engineering, in protective procedures in the plant, in labor and management cooperation, and in government assistance in the areas of education, regulation, and enforcement.

In modern industrial life, the safety factor cannot stand still. It must either move forward in

pace with the phenomenal advances of the mechanical and engineering sciences—or it inevitably falls behind. This would be tragic; it would also be unforgivable.

It must never be said of this mid-twentieth century in America that our only measure of success was the number of units which left the assembly line, or the take-home pay of the man in overalls. Success is measured, too, by the protection we afforded those who toiled—by lives which were spared and the blood which was not spilled.

## Build Human Dignity

We must therefore approach the subject of this conference with dedicated purpose. The universal language of safety, which we here employ, must be translated into more effective action at home. We must leave here with the high determination to do a better job than we have been doing in the whole field of industrial safety.

By so recognizing the worth, the rights, and the welfare of the individual in American industrial life, we build human dignity, and

so strengthen the sinews of a free America. We place man first, as befits our American way of life. We pay allegiance to the cherished principle that the personal well being of our citizens is the primary concern of all.

The true role of the state in this undertaking is a big one. But it is a role which can be fulfilled with measurable success, if there is enlightened leadership by all who occupy positions of responsibility.

Freedom is the only atmosphere in which the spirit of men and women can grow. It is an atmosphere in which all men can achieve dignity, where they can both contribute to, and benefit from, the American way of life.

The key to our freedom is the prime importance of the individual—the sacred dignity which inherently is his. It follows that our efforts to promote safety, placing as they do, the emphasis on the worth of man, contribute to the protection of our American liberty.

Safety cannot be imposed from above. It can only come about when the individual rises to standards of self-discipline and understanding which, in turn, strength-

en his character and matures him as a responsible citizen in a free society. This self-discipline is the counterpart of freedom. One cannot exist very long without the other.

In a conference like this it is highly important that an effective pattern of action be formulated. Since safety begins with the individual, the program must be carried on as close to him as possible and he must be asked to accept a major share in it. Besides the employee, the other two partners in any industrial safety program are the employer and government. The areas for government action are to give leadership in industrial safety by initiating programs where none exists, to encourage and aid in those fields where programs are maturing, and to recognize and support enthusiastically those who realize the necessity and value of safety on the job but lack either the means or the knowledge to initiate constructive programs.

### Help, Not Coercion

Government has a very important place of leadership but it must not try to force safety down the throats of employers and employees in disregard of cooperative procedure. There is a tremendous field, however, for government in the area of encouraging management and labor to work together. The benefits for both are so great that the program sells itself. It enhances profits, it develops mutual confidence between labor and management, it saves lives and it develops a spirit of friendship which does more to improve the industrial process than any other contact which can be developed between management and its employees.

What should be done in each State of the Union? We must recognize the great variation of existing agencies now established in the several states. We must recognize the great difference in the basic laws and, specifically, statutes pertaining to workmen's compensation in the various states. I am not here to argue the merits of any particular form of protection in case of injury. But no plan is adequate today unless it pro-

vides comprehensive coverage to all who are employed in extra-hazardous industries.

It has been our experience that the responsibility of administering the workmen's compensation law was not really fulfilled until the state assumed greater influence in the field of industrial safety. Industrial safety programs should be adjusted to, and administered in, conjunction with workmen's compensation laws. Also, thought should be given to uniformity of compensation laws and with that, of course, the administration of safety programs as administered by government agencies.

It is recognized that certain private insurance carriers as well as many large industries have made contributions in the field of in-

## THE GOVERNMENT, THE PEOPLE, AND SAFETY

*Their relationships as interpreted by Governor Langlie*

- Safety has to be stimulated at the plant level.
- Essential is an intelligent, safety-minded management that will participate actively in the program.
- Cooperation between employees and management, disregarding other problems that they may have by concentrating on an effort in which they speak with one voice, is essential.
- Leadership from State officials and, in many instances, local officials, can do much to stimulate action and bring together parties who heretofore have never even informally been introduced to any cooperative action.
- If States are not taking leadership, the Federal Government can be helpful in stimulating action, for there must be a beginning point.
- Accurate records should be kept, for records give the only intelligent guidance to the types of programs most needed for a particular industry or plant.
- Money expended for good leadership at the State level is a good investment.
- Outstanding achievement should be recognized by proper awards.
- Finally, despite all of our efforts to convince our people that doing the job together voluntarily and gladly is the most effective method to combat accidents, we must be realistic enough to recognize human weakness. Therefore, the duty to enforce rules and regulations remains a potent factor.

... Employers can exercise this duty through conditions of employment—the power of the paycheck, if you please.

... Labor can exercise it through discipline of its members.

... State Government can exercise it through enactment and enforcement of enlightened legislation.

dustrial safety. From an over-all point of view, however, these programs are usually confined to the larger industries, and do not cover the thousands upon thousands of small places of employment—and it is there that our problem lies.

\* \* \*

There are three principal avenues of approach to industrial safety. One is cold and factual—we may even say it is strictly an engineering and academic approach. It concerns itself with code enforcement, regulations and penalties. There are those who would rely entirely on this phase.

The second is strictly an educational approach, hoping that people will respond to education, good advice and well designed

—To page 99



# Legislating Atomic Health and Safety

Progress in atomic industrial development will need a regulatory philosophy based on a close working partnership between industry and government

By MUNROE F. POFCHER

**L**EGISLATING atomic health and safety is like legislating against yellow fever and small-pox: You must quarantine, isolate, regulate, and then pray for the best.

Praying for the best is not to be deprecated. But by itself it is not likely to provide the legal and administrative climate of radiological health and safety regulations at all levels of government—the sort of climate which will encourage, not hinder, the expansion of industrial and medical applications of nuclear energy and radioisotopes.

The challenge to industry involves the solution of these problems and the establishment of a favorable regulatory climate. State action both taken and planned makes it clear that this will not happen without affirmative action by industry—action by individual companies and by industrial leaders working in concert—along the lines suggested below.

The multiplicity of restrictions which have evolved since the Atomic Energy Act of 1954 became law poses this challenge to the atomic energy industry: You face the possibility of conflicting and burdensome rules and regu-

lations at all levels of government unless you use your good offices and take positive steps in the very near future to assure the reasonableness and enforceability of governmental action in this field.

The Atomic Energy Act of 1954 provides generally that all licensees must observe health and safety standards to be issued by the Atomic Energy Commission. The AEC has thus far not made clear the regulatory pattern and philosophy it will observe in this field.

One proposed regulation has been issued but not yet adopted. This proposed regulation establishes maximum limits of radiation arising from AEC-licensed activities to which individuals may be exposed. It also sets forth permissible levels of radiation in uncontrolled areas, in radioactive effluent, and for waste disposal.

Licensees are required to establish personnel monitoring programs, to post specifically designated radiation warning signs, to provide personnel instruction, and to make certain records and reports.

It is, at the moment, an open question as to whether the AEC intends, and indeed has the authority, to preempt the health and safety regulatory field—at least insofar as its licensees are concerned. There is considerable conjecture that it does so intend.

In the meantime, many state and local governments and their health and labor departments,

who have traditionally had the major say in assuring adequate health and safety conditions for industrial workers and the general public, have proceeded with radiation legislation and regulations without any attempt at delineation of responsibilities and authority vis-a-vis the AEC or even other departments in the same state.

## State Action

State action—and inaction—has varied widely. There are a number of states which have not as yet taken any action in this field. Some apparently do not intend to—at least at present—and are in accord with the attitude of North Carolina whose State Department of Health, in answer to a direct inquiry, told me that “atomic energy at the present moment is under the control of the Atomic Energy Commission (and) right now there are no special laws to this effect in North Carolina.”

Other states, for example Michigan and Pennsylvania, are studying the problem; Michigan has established a committee of state officials to advise the Governor and Legislature, while Pennsylvania has several drafts under consideration.

Many of the non-industrialized western states have considered the problem only as it affects workers in uranium mines and their exposure to radioactive dust and gas. The Industrial Commis-

MUNROE F. POFCHER is a member of the law firm of Pofcher, Schluskel and Counsel to Radiation Applications Incorporated. This article has been condensed from a paper presented at a meeting of the Atomic Industrial Forum, Washington, D.C., September 28, 1955.



sion of Utah has recently issued a general safety order providing that the atmospheric concentration of the immediate daughters of radon shall not exceed 300 micromicrocuries per liter in any uranium mine. A similar regulation is under consideration in other Plateau states.

The two most active states, from the legislative and regulatory point of view, have been California and New York.

**California.** In Los Angeles, the Municipal Code now provides for an exposure limit of 300 mr. per week of any ionizing radiation from radioactive isotopes and further provides for the storage of radioactive isotopes in containers or rooms which are constructed of materials having a locally-determined fire resistive rating. It is unclear whether containers of radioactive isotopes, shipped to AEC-licensees in Los Angeles, must conform to fire resistive specifications of the Los Angeles Department of Building and Safety in order to be legally stored on arrival.

The California State Division of Industrial Safety has issued general safety orders setting forth minimum standards for the protection of employees exposed to radiation. These are similar to, though not as detailed as, the New York Labor Code. The California State Legislature and the City of San Francisco have thus far paid heed only to radioactive wastes.

As matters now stand, disposal of radioactive licensed material in San Francisco involves compliance with AEC regulations, reports to the Director of Public Works of the City and County of San Francisco, and the securing of a permit—issued only after a public hearing—from the California State Department of Public Health.

**New York** has issued the most detailed administrative regulations. The State Department of Health and the State Department of Labor have both issued radiation codes similar in nature to each other and to the proposed AEC Regulation. The Labor Department Code covers industrial employees and establishments

#### HOW INDUSTRY CAN AID ATOMIC SAFETY

- Participate actively in consideration of state and local legislation
- Set up internal training programs for radiation safety and offer to lend qualified men to state agencies for limited assignments
- Suggest establishment of advisory committees and offer to serve on them
- Establish and support training programs in colleges
- Extend self policing and self regulation

while the Health Department Code is directed primarily to hospitals, non-profit laboratories, and the environment outside industrial establishments.

This dichotomy is in some respects more apparent than real, however, and many jurisdictional problems are likely to arise. For example, the Health Department Code refers to the disposal of radioactive wastes but leaves uncovered the inspection and supervision of disposal equipment and techniques inside industrial plants discharging radioactive wastes.

The Labor Department Code makes no mention of waste disposal but does specifically provide that certain attended hospital areas need not be posted with radioactive caution signs. This exemption, also found in the proposed AEC Regulation, is not mentioned in the Health Department Code, despite the fact that the Health Department is supposed to supervise hospital safety. There is also an interesting hiatus as far as New York City is concerned in that the regulations of the State Department of Health do not apply in New York City. The provisions of the New York City Sanitary Code dealing with radiation were adopted in January 1922 and are, of course, completely out of date.

Both the Labor and Health Codes provide for registration of sources of radiation (on registration forms asking different information), set forth maximum

exposure limits (which are in accord with the limits of the AEC and the National Committee on Radiation Protection), and provide for personnel monitoring and training, caution labels and signs, and the making and retention of certain medical and exposure records and reports. Neither code provides for pre-employment physicals. This is required by the California Division of Industrial Safety and may prove to be a serious shortcoming of the New York codes.

**New Jersey** has considered this general subject and the rules and regulations drafted by the New York agencies. The Department of Health has concluded that the adoption of detailed regulations would be unwise. They believe that such regulations are not enforceable in light of the present nation-wide shortage of trained radiation safety personnel, and that a detailed code could not now be uniformly and equitably applied. Radiation protection is expensive, and comprehensive regulations difficult of enforcement may encourage some industrial concerns to take unfair competitive advantage while jeopardizing the health and safety of employees and the public.

New Jersey's plan in general is a simple and brief administrative prohibition against exposure to excessive doses of radiation, followed by education, training,

—To page 130



**FIGURE 1.** This cheater interlock switch is automatically reset when cabinet access door is closed.



**FIGURE 2.** Solenoid operated shorting bar is used to insure against high-voltage capacitor buildup.

# Testing for Safety Also Needs Safeguarding

New technology with higher powers and frequencies and wider operating ranges for velocities, accelerations, pressures, temperatures and volatilities complicate today's problems

By FRANK MCGINNIS

**A** DECADE ago the hazards commonly encountered in the electronics industry were almost exclusively those pertaining to such things as voltage distribution, rotating machinery controls, etc. As an industry broadens its



FRANK MCGINNIS is Works Test Superintendent, Sperry Gyroscope Division of Sperry Rand Corporation, Great Neck, N. Y. Since joining the company in 1942 he has been associated with the field of radar measurement and

with the development of production test techniques. He was involved in the first detection devices built by Sperry, including submarine detection, night fighter, and searchlight control radars.

operations to embrace the related fields of pneumatics, hydraulics, and nucleonics, the problems of safety increase proportionately.

The problems are further complicated by the introduction of new technology involving higher powers and frequencies, and wider operating ranges for velocities, accelerations, pressures, temperatures, and volatilities.

Through experience it has been found that safety equipment may be just as complicated, and often more complicated, than the products tested. This very complexity has forced industry to make a critical re-examination of safety problems.

Since World War II, both military and commercial products have been geared to supersonic speeds and the extreme environ-

mental conditions associated with high altitudes. Safety engineers have been hard pressed to keep manufacturing devices and practices safe for those who are working with this new equipment.

Hazards can be conveniently grouped under four headings: electrical, pneumatic, hydraulic, and radiation.

## Electrical Hazards

It is well known that electric current in excess of eight milliamps can be injurious or lethal to the human body. Since many operations in our field involve voltages capable of producing currents far in excess of this value, it is imperative that adequate safety controls be set up.

In the field of high voltage, personnel protection is usually chan-

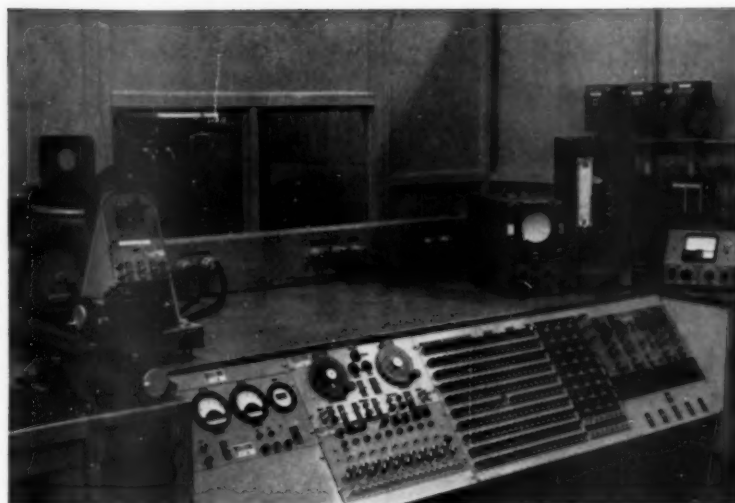
nelled into three separate avenues of approach: cabinets and interlocks, capacitor discharge protection, and personnel instruction.

**Cabinets and Interlocks.** All high-voltage equipment used in production work at Sperry is permanently installed in grounded, heavy-gauge steel cabinets. Cabinet access doors, including those used for visual observation, are provided with double interlocks. Observation is made through windows of shatterproof plastic.

Most high-voltage fixtures include an added safety feature whereby the voltage control unit returns to zero upon shutdown. The unit also requires hand control of the voltage by the operator, which insures that component failure under test occurs at the lowest possible voltage, thereby preventing equipment damage.

Although it is sometimes necessary to bypass cabinet interlocks, it is a dangerous act which causes considerable concern. Some measure of relief is obtained, however, by using a device we call the "cheater-interlock switch," shown in Figure 1. This interlock permits a single bypass during the performance of maintenance work, but the unit automatically resets itself when the access door is closed.

Thus, the operator no longer may become the unwary victim of



**FIGURE 3.** Hydraulic testing rooms provide viewing windows and externally-mounted controls for safety of operators.

someone's forgetfulness. Each time the access doors are opened, the "cheater" must be reset. Suitable warning devices have been added to this equipment to prevent operation by unauthorized personnel.

**Capacitor Discharge Devices.** High voltage d-c circuits create a different protection problem. Although the same type of cabinets and interlocks are provided in these circuits, further precautions are necessary.

One of the greatest potential

danger sources in this type of circuit is the electrostatic charge remaining across a capacitor after the applied voltage is removed. This is especially true where no bleeders are included in the circuit. A single bleeder provided only in the component under test may prove to be defective. The use of a shorting rod may also prove ineffective, because dangerously high voltages are often regained by the capacitors after the shorting rod is removed.

Whenever possible, a spring-

—To page 109

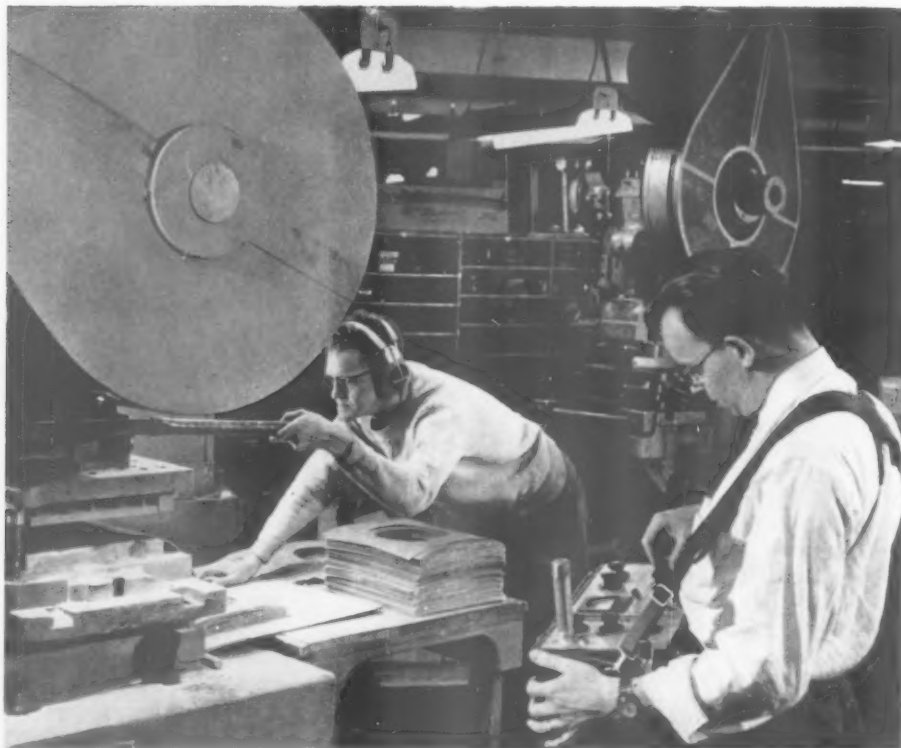


**FIGURE 4.** Radiation test devices include lead cylinder at left, test samples, film badge, and Cobalt 60 at right.



**FIGURE 5.** Lead cylinder, bell jar, and plastic doors are components of high-altitude cosmic radiation test unit.

**TECHNICIAN** takes sound pressure level readings at a punch press with a new electronic instrument, the Soundscope. Machine operator wears ear-muff-type protectors. (Photos by Mine Safety Appliances Company)



# How We Hear

## *... And How Noise Affects Our Hearing*

By LEO G. DOERFLER, Ph.D.

**WE HEAR** only a limited amount of the sound which exists in nature. This is because our ears are tuned to a narrow band of frequencies centered around those sounds which have value to us in the understanding of spoken speech. Certain animals are able to hear sounds which are inaudible to us, but which carry meaning to them.

To understand why our range of hearing is limited in this way, we must understand how sound waves are transformed into heard sounds by a human ear and brain. There are three stages in this process.

DR. LEO G. DOERFLER is Professor of Audiology, University of Pittsburgh School of Medicine.

Wave motion in air to mechanical vibration. Some of the sound waves in air generated by the vibrating source enter the ear canal and are directed down its length, approximately one in., to the ear drum, which constitutes a dead end to the canal. What we call the ear, the part which protrudes from the side of the head, does not help us appreciably to hear faint sounds, although it may tell us from what direction a sound is coming.

In traversing the ear canal, the nature of the entering sound waves is altered somewhat because of the resonance of the canal. Certain sounds, especially those around 3,000 cycles, are amplified.

The ear drum is set into motion by the sound waves traversing the canal, and reproduces the nature of this wave motion very well. Embedded near the center of the eardrum, which points inward, is the first of three small bones (ossicles) which, linked together, carry the wave motion across a small air space (middle ear) to an opening (air window) in the opposite bony wall.

The mechanism whereby wave motion in air is transformed to similar mechanical vibration (ear drum and ossicles) is essentially that of a transducer. The difference in area between the ear drum and the opening in the inner bony wall, plus the lever-like action of the three ossicles, provide



for an efficient transfer of energy in this process. Certain sounds, especially those between 1,000 and 5,000 cycles, appear to be transmitted most efficiently by this mechanism.

**Mechanical vibration to wave motion in fluid.** The last of the three small bones (stapes) fits into the oval window, opening into the inner ear. Its base seals in the liquid of the inner ear, which fills a coiled tunnel (cochlea), embedded in bone. A bony and fibrous shelf (basilar membrane) separates the top and bottom halves of this cavity, with the upper part again divided into two canals.

The mechanical vibration of the stapes in its oval opening sets up similar wave motion in the fluid. As this wave motion traverses the upper spiral cavity it exerts pressure upon minute hair cells distributed on both sides of the tunnel of Corti, which is located on the basilar membrane.

Since the fluid in the cochlea is virtually incompressible, some means of relief must be provided for the pressure produced by the stapes. What occurs is that with inward movement of the stapes footplate in the oval window, outward movements of opposite phase occur at the round window.

The semi-circular canals, which are concerned with balance, are also imbedded in bone and have certain connections with the cochlea.

**Wave motion in fluid to nerve impulses.** The pressure exerted upon the hair cells and nerve endings on the bony shelf in the cochlea appears to excite them in such a way as to set off the transmission of electrical nerve impulses. The wave motion in the fluid is coded in this way into a pattern of nerve impulses which travels along the auditory pathway to the parts of the brain which primarily are concerned with the appreciation of these impulses. Along the pathway to the brain there are also several relays which affect the transmission of the impulses.

The fluid in the inner ear cavities may also be set into motion when sounds of high intensity in the air set the human head into

vibration, or when a vibrating object is held against the head. In either of these two situations the normal route of transmission through vibration of ear drum and ossicles may be partially or entirely bypassed.

Through this process of transduction of energy we find that the average human hearing is limited in its range. In general, young adults can hear frequencies from 16 cycles up to almost 20,000 cycles. Certain frequencies are perceived at lower intensities than others. Going from 16 cycles up to about 2,000 cycles it takes progressively less intensity for a tone to be barely heard. From 2,000 cycles to higher frequencies greater intensity is required to make the tones audible.

Another consideration in measuring the range of hearing is the limit of sound intensity which the ear or the human being with the ear can tolerate.

It is interesting to note that this tolerance threshold does not vary markedly with frequency, although it has been observed that higher frequencies are more unpleasant than lower frequencies of the same intensity. However, sound can produce auditory damage without noticeable pain.

### Effects of Noise

Ear damage from noise may be in the conductive mechanism of the ear, consisting of damage to the ear drum or to the three bones (ossicles) which transmit the vibratory energy across the middle ear to the inner ear. Under certain conditions the vibrations of these structures may become ex-

cessive with resultant damage. Tearing of the ear drum is the more common resultant of excessive pressure variations caused by intense sounds.

Sudden intense sounds, rather than continuous sound stimulation, are the usual cause of tears or perforations of the ear drum. These tears apparently heal rather readily, and in the absence of subsequent infection of the middle ear, do not of themselves result in a loss of hearing. In occasional cases healing does not occur completely, and in these cases some degree of hearing impairment will result. The degree of this conductive impairment will vary, but it may range from a mild to a moderate loss. The maximum hearing loss which may be caused by this conductive involvement will be in the order of approximately 50 db.

Experience with soldiers exposed to explosions in World War II suggests that inner ear hearing loss was not as severe when the ear drum was ruptured as when it remained intact. The surmise is that the pressure wave impinges upon both the round and oval window at the same time when the ear drum is torn, thus preventing delivery of this sudden sound energy to the more delicate structures of the inner ear.

When we speak of noise having an effect upon hearing, we are usually referring to a raising of the threshold of hearing, requiring more acoustic energy before a sound is perceived. This raising of the threshold of hearing may be temporary, with a return to the previous level after a period of time, or it may be permanent. It appears that regardless of whether the shift of threshold is temporary or permanent, the structures involved are the hair cells against which the nerve endings terminate on the basilar membrane.

Customarily a measurable temporary shift in threshold is called "auditory fatigue," and the assumption implicit in this definition is the return to the previous threshold level. It has been shown that this shift in auditory threshold occurs after exposure to

—To page 145



**LIGHTWEIGHT** electronic unit, the soundscope, combines functions of four instruments previously required to measure and analyze noise.



## THE DIARY OF A SAFETY ENGINEER

(Fiction)



What's the answer when a safety program comes to a dead halt after achieving spectacular results? Our S.E. finds a clue in some dusty, nine-year-old memos

# Dust on the Slide Rule

By BILL ANDREWS

July 2, 1956

**I**'M JUST BACK from my first inspection trip in my new capacity as roaming safety consultant for Eastern Enterprises. And I'm enjoying the luxury, for the first time in almost 20 years, of not dreading the ring of a telephone at night. For the year just begun I will not have the responsibility of cleaning up after any accident in any plant.

My first visit was to a medium-sized steel plant not too far from Pittsburgh. I knew Lorman, the safety director, slightly. We'd both been chairmen of NSC industrial sections the same year, and served together on the Industrial Conference.

He was both puzzled and ill at ease on my arrival. I didn't blame him much, for Eastern had been very non-explicit about my status and mission in its letter to him. I was to be given every facility for study, and careful consideration was to be given to any suggestions I made. That was about all the letter said.

I didn't help clarify the situation much, for Eastern has left it up to me to define my function in detail, and I'm leaving myself as free as possible of restricting definitions at the outset. So I

asked Lorman simply to brief me on his over-all program. That took a day and a half—partly in talk between the two of us, and partly in a study of his reports and files. Then I borrowed his junior assistant and let him show me over the works. That took another day.

I finished the week on my own, attending safety committee meetings, a new employee class, a foreman's meeting. I also talked with the general superintendent and had a longer talk with some of the customers of Louis' Bar a block from the main gate.

The picture that I developed, as I sorted out notes and memories in my hotel room over the weekend, had some points of interest. Historically, the plant had plodded along a little behind the steel industry in general before than through World War II. Lorman had come in 1947, had instituted a vigorous (and some executives thought radical) program which, in five years, brought a substantial reduction in both frequency and severity rates, and gave Lorman a reputation as a top-flight safety man.

But then improvement stopped. For three years frequency has hung around the 1952 level, while

severity has worsened slightly. Even allowing for some element of luck operating in the severity matter, the lack of improvement in frequency is a cause for concern.

Some leveling off I would expect after a good man's initial sprint to clean up the worst parts of a bad situation. But not a dead halt, not a mere maintaining of level. A soundly based surge ahead should have been followed by a long-haul slow gain.

No major personnel or management upheavals marked the end of progress. Nor was there any sudden shift in the emphasis of the safety program. Nor, and I checked this particularly, was there any feeling that Lorman had gone soft and coasted on his success.

Lorman's background is good. Engineering degree from a top school. An apprenticeship in steel just before the war. Then a record as a good assistant safety engineer in West Coast shipyards during the war—when plenty of bad safety work was being done. He went with one of the major compensation carriers as a safety engineer late in '45, and made a host of friends—through one of

—To page 93

# Congress Plans Taking Shape

Programs and speakers are announced for several sections as planners and delegates get ready for the 44th National Safety Congress and Exposition

**S**ETTING the keynote for the 44th Congress, October 22-26 in Chicago, will be the slogan expressing its purpose—"Prevent Accidents." As the time grows shorter, more and more plans and programs for the 300 sessions and 700 speakers begin to take definite form.

More than 12,000 convention visitors are expected to attend safety's biggest show this fall. They will exchange ideas and learn from the experience of others how to solve the constantly changing problems involved in putting into action the idea expressed so aptly in this year's slogan. Young and old, veterans and newcomers, they will listen to experts describing safety topics in tremendous variety and in practical, factual terms.

They will attend meetings, luncheons, speeches, and banquets—but they'll find time, too, for shopping, and touring, and relaxing in the Windy City. And, when the week is over, they'll go back to their jobs with ideas they can apply in their companies' accident prevention programs.

Announced programs at this time include some inspirational sessions with the early morning speaker and a varied line-up of talented speakers for several sections of the Industrial Department.

**Early morning sessions.** Practical suggestions of a "how-to" nature will comprise a series of early morning sessions entitled "Live a More Abundant Life" at the 44th National Safety Congress. The speaker at this person-

nally favorite feature will be David Guy Powers, associate professor of Speech, Queens College, New York.

The sessions, to be held in the Grand Ballroom of the Conrad Hilton Hotel, and their subjects are scheduled as follows:

**Tuesday**—"How to Live a More Abundant Life."

**Wednesday**—"How to Streamline Your Mind."

**Thursday**—"How to Sell Your Ideas."

**Friday**—"How to Lead Men."

A well-known sales and advertising consultant with Shea-Powers Associates, New York, Dr. Powers was voted "Lecturer of the Year" by the Columbia Lecture Bureau in 1949. He is noted also as a lecturer and author. His latest book, *Live a New Life*, has sold more than 100,000 copies.

Dr. Powers' early morning Congress talks will stress methods for meeting the challenge of a more abundant life, means for turning ideas into human actions, and "secrets" of personal power.

**Rubber Section.** Monday afternoon, October 23, will see a series of eight round table discussions conducted simultaneously for delegates from the rubber industry. Of particular significance are those dealing with fire safety and with synthetic rubber operations.

The first will be led by George Burkhardt, of General Tire and Rubber Co. G. T. Shuster, of the Texas-U. S. Chemical Co., Port Neches, Tex., will lead the discussion on "Safety in Synthetic Rubber and Raw Material Opera-

tions," a composite program of the entire synthetic industry.

Other discussions will cover training supervision, personal protective equipment, mechanical goods production, health hazards of new chemicals, power tractors, and reclaim plant operations.

## **Aeronautical Industries Section.**

Once again G. M. Kintz and H. F. Browne, of the U. S. Bureau of Mines, will be featured speakers. Their talks this year, "Static Electricity and Spark-proof Tools," will be a part of the Wednesday afternoon session. Mr. Kintz is chief and Mr. Browne is assistant chief of the Bureau's Accident Prevention and Health Division in Dallas, Tex.

The Section's Monday afternoon session will include a panel discussion on "The Most Effective Single Item of My Plant's Safety Program" with safety engineers from four leading companies participating. Also on the program is a talk, "Chemicals Can Be Harmless," by Dr. John H. Foulger, director of medical research for DuPont.

## **Automotive and Machine Shop**

**Section.** Three speakers will comprise a panel to discuss "Is Your Overhead Coming Down?" Their subjects—"Hoist Safety," "Lifting Devices," and "Industrial Hygiene at High Plant Levels"—will carry the idea that overhead expenses will come down when overhead equipment is operated safely.

**Power Press and Forging Section.** The Wednesday afternoon

—To page 102



# SAMMY SAFETY'S NOTEBOOK

By Arthur S. Kelly

Industrial Department, NSC

**Y**OU MAY have wondered how the winner is selected each month. I had anticipated something of an onslaught of ideas and suggestions which would make it difficult not only to select the winner each month but actually to choose those items which would be used each month. I was slightly optimistic but I wish it would work out that way.

Before the first issue appeared I asked three persons with extensive and varied experience in industry to serve as a panel of judges. Only one is a member of NSC's Industrial Department. Each month these judges, independently, make their selection of the first, second and third choice and forward them to me. I reverse these numbers and use them as weighting factors for each choice. In other words first place vote would count three points, second place, two points and third place one point.

With this method it would be unusual for the voting to end in a tie. It was close in May, however, and I presume one of these

times a tie might result and I will have to give duplicate awards. And I'll be glad to do it, too.

Perhaps it's time now to restate the intent of "Sammy Safety's Notebook" and describe the type of idea which qualifies. It is intended to cover homemade (by anyone in the plant) safety devices or gimmicks which have made a machine, a job or an operation safer.

We have had a couple of excellent ideas submitted which, while not of the type just described, were excellent bets for the "Showmanship in Safety" feature, which appears each month in the News, and these ideas were turned over to the editor of that feature. The winner each month wins an award—choice between a Parker "51" Standard Pen and a cigarette lighter set in black Italian marble.

The winner for June was William Watson, Jr., Manufacturing Department, Hanford Atomic Products Operation, General Electric Company, Richland, Wash.

The award for the best idea submitted during the first six months of 1956 goes to Stuart C. Curtis, safety director, Burroughs Company, Detroit. Mr. Curtis will have his choice of a desk clock or a luxury billfold.



## Log Holder

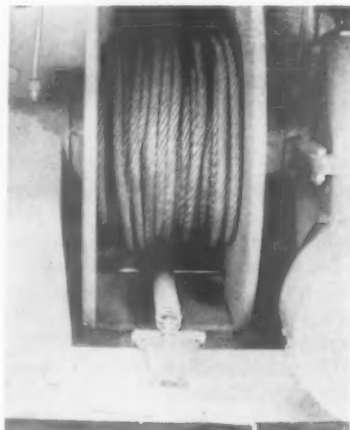
THIS HOLD-DOWN device was developed at the U. S. Forest Products Laboratory, Madison, Wis., to keep round material from turning while being cut. The mechanism is adjustable to the size of the log.

## Safety Arm

WHEN THE CABLE on the spool of a truck-mounted winch jumps the spool you can expect trouble and serious injury if anyone is near by. These pictures show a safety arm or rider arm which was designed to be inserted between the flange of the reel and pressed directly against the cable with spring tension.

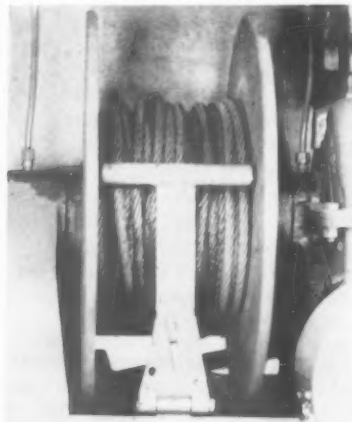
At near right is a front view showing the rider arm against the table reel. Photo at far right is rear view showing how the spring is mounted.

Tension on the spring can be adjusted and the round rider bar prevents cutting or wearing of the cable and the cable cannot become loose and foul on the spool.



No accidents have been reported since this device was installed.

Submitted by H. G. Honig, su-



perintendent, Street Lighting, Construction and Maintenance Department, City of Los Angeles.

### Forming Rolls Brake

FORMING ROLLS, while not considered the most hazardous of machines, nevertheless must be regarded with considerable respect. In a normal operation the hand-operated gear lever is held in forward or reverse position by a pin (see arrow) on the underside, the pin seating itself in a hole in the machine frame. In an effort to find some way to insure immediate stopping of the rolls three men, including a foreman, at the Armstrong Furnace Company, hit on the idea shown in this picture.

Frequently a man's two hands are occupied in operating this machine and if his shirt sleeve or hand should get caught in the roll he could not lift the gear lever. By stepping on the safety pedal the gear lever pin is lifted out of the hole and it is immediately



pulled into "neutral" position by a spring on the lever which causes the roll to stop instantly.

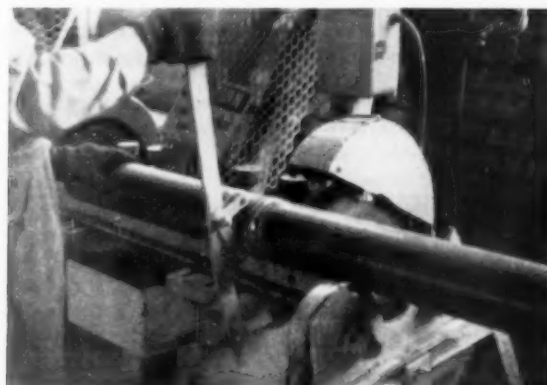
Submitted by Don La Rue, safety director, Armstrong Furnace Company, Columbus, Ohio.



### Grinding and Handling Pipes

HANDLING heavy pipes and grinding welds on spliced pipes presents a problem which was solved by the device shown here. In the photograph at left a scissor clamp has been modified as follows: The right side, in the photograph, has been hinged and a pin inserted in a hole drilled through the matching lugs, shown in the scissor between the two hinges. The bottom surface of this particular part of the clamp has been faced with a  $\frac{3}{8}$ -in. piece of hard rubber to prevent the pipe slipping.

The photo at right shows the jig developed for grinding down the welds at the splice. Two horses, one of which is shown in each photograph, were built with idling wheels spaced four in. apart and hinged at the under side center at the bottom per-



mitting the wheel attachments to be rocked forward into the wheel or backwards.

The holding device shown in the lower photograph is hinged below the grinding wheel and has an adjustable "V" with idling wheels in the ends which rides against the pipe.

This arrangement for grinding welds results in a smoother, better job of grinding and is much faster than any other arrangement tried before. The pipe cannot fall when the weld is being ground and the operator never has his hands near the grinding wheel.

This idea is credited to Mr. William Peden and was submitted by W. L. Keating, personnel director, Robberson Steel Company, Oklahoma City, Oklahoma.



# WIRE FROM WASHINGTON



By Harry N. Rosenfield  
Washington Counsel, National Safety Council

A VERY MUCH quickened pace of Congressional consideration and action concerning safety and accident prevention matters is taking place as the session draws to a close.

**Industrial Safety.** The Joint Committee on Atomic Energy held hearings on proposed legislation to provide Federal indemnity against the hazards of nuclear power plant operation. S. 3929 and H.R. 11242 would set statutory limits on liability for atomic accidents and provide government indemnity or reinsurance to supplement private insurance. The Atomic Energy Commission recommended the enactment of legislation to this general purpose, on the ground that private insurance companies would provide insurance only up to \$65 million, and that therefore government protection should be available above this level.

The AEC urged establishment of a half-billion dollar Federal program to cover losses in excess of available private insurance. The AEC also emphasized that experience indicated the chance of a bad nuclear accident was extremely remote, but that it could happen. An AFL-CIO witness stated that the safety features of the atomic age had been painted "too rosy" by official witnesses.

Senator Watkins of Utah called the Senate's attention to the National Safety Council's award to a major industrial concern in his state, and Senator Neuberger of Oregon introduced into the *Congressional Record* a resolution from the Oregon Farm Bureau Federation urging luminous marking of railroad cars to avoid night accidents. (Two bills in the House deal with this subject, H.R. 2399 and H.R. 8899.)

The President's Conference on

Occupational Safety reported to the President that it had "developed concrete suggestions for strengthening existing accident prevention by focusing attention on the problems at the local level." Its recommendations were:

1. To strengthen the organization and operation of state governmental agencies having jurisdiction over the enforcement of legislation designed to remedy hazards;
2. To develop effective safety programs within government at all levels;
3. To strengthen, expand and make more adequate, in a variety of specified ways, the farm safety program; and
4. To strengthen and expand community safety programs, with special reference to the role of the schools, labor unions and public officials.

**Highway Safety.** The Senate passed the highway construction bills, which go to a conference committee to iron out differences between the Senate and the House. Senator Chavez chairman of the Senate Committee that reported the bill, said: "We must build every known safety device into our present-day highways. We must also study the matter, enforce our traffic laws, and bring the realization of the conditions to the motoring public."

The Senate bill includes an amendment proposed by Senator Margaret Chase Smith which directs the Secretary of Commerce to make a study of highway safety and report to Congress by June 30, 1957. This amendment, which is substantially the same as S. Res. 156 (see "Wire," February 1956) would study "what action can be taken by the Federal Government to promote the public welfare by increasing highway safety in the United States."

In particular, the following items are to be studied and reported upon:

1. The need for Federal assistance in

the enforcement of safety and speed requirements;

2. Uniform state and local highway safety and speed laws;
3. Promotion of safety in the manufacture of vehicles;
4. Educational programs;
5. Highway design; and
6. Other appropriate matters.

Senator Smith justified a safety amendment to a highway bill on the ground that, "We are putting jet cars on horse and buggy roads."

That is one of the reasons why 40,000 Americans are being killed each year."

A five-member special subcommittee was appointed in the House, pursuant to H. Res. 357 (see "Wire," April and May 1956) which authorizes the House Committee on Interstate and Foreign Commerce to conduct an investigation into the cause of the increase in the number of highway accidents.

Traffic accidents was a subject of much Congressional discussion. Senator Humphrey called attention to Minnesota's award from the National Safety Council. Senator Douglas urged action on his Sen. Res. 270 to authorize the Senate Committee on Labor and Public Welfare to make a full and complete investigation and study of automobile accidents, automotive engineering and design, and possible legislation to establish uniform safety standards. Traffic accident research was also urged by various members of the House.

The Bureau of Public Roads announced that a 7.2 per cent increase in motor vehicle registrations during 1955 had lifted the total in the United States to 62,760,395. This is a gain of 4,197,145 vehicles over 1954, the largest increase since 1950. Registrations are now more than double the 1945 figure.

—To page 90

# CLEANING SMALL CONTAINERS THAT HAVE HELD COMBUSTIBLES

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1. This data sheet covers the cleaning of small containers such as drums, fuel tanks of cars and trucks, cans, barrels, and tanks for domestic storage and heating that are not equipped with man-holes or that cannot otherwise be entered. It does not apply to the cleaning of tanks that may be entered, i.e., large containers such as petroleum storage tanks.\*

2. Explosions and fires may result if welding, cutting, or other hot work is done on containers that are not entirely free of flammable solids, liquids, or gases, or substances that may produce flammable vapors or gases. Also, when such containers are to be re-used for other products or purposes, they must be clean and free of any substance which may cause contamination.

## Substances That Produce Flammable Vapors

3. The following substances are considered capable of producing flammable vapors:

- a. Gasoline, naphtha, alcohol, thinners, and other volatile liquids. These substances release flammable vapors at atmospheric pressure and at normal and below normal temperatures.
- b. Nonvolatile oils and solids, which at ordinary temperatures do not release flammable vapors, but when exposed to heat do release such vapors.
- c. Acids that react with metals to produce hydrogen.

\*The procedures for cleaning such tanks may be found in Accident Prevention Manual No. 1, *Cleaning Petroleum Storage Tanks* (Sections A and B), published by the American Petroleum Institute.

This Data Sheet is one of a series published by the National Safety Council, reflecting experience from many sources. Not every acceptable safety procedure in the field is necessarily included. This Data Sheet should not be confused with American Standard Safety codes, federal laws, insurance requirements, state laws, rules and regulations, or municipal ordinances.

4. Before a container is cleaned, it should be determined whether the contents are combustible. Also, it should be determined whether the contents are soluble in water, whether the substance will react with water, and, if so, what the results will be.

5. Many containers will have been used for some type of flammable petroleum product. These products are not as dangerous as certain other organic solvents, such as carbon bisulfide, which has a much wider flammable range and ignites at a lower temperature.

6. In all cases, however, it is necessary to use extreme caution. Whenever there is a doubt about the properties of a substance, the manufacturer or a recognized chemical reference book should be consulted.

7. In addition to the hazards of fire and explosion, there is also the hazard of burns involved when hot solutions or soda ash and steam are used for cleaning containers.

## Personal Protective Equipment

8. Workers handling dry caustic soda or soda ash should wear nuisance dust-type mechanical filter respirators that have been approved by the Bureau of Mines. They should also wear long sleeves, rubber gloves, and rubber aprons. The eyes should be protected by chemical-type goggles. Proper precautions should be exercised to prevent any part of the body from coming in direct contact with the dry soda or soda ash.

9. Workers handling the caustic solutions should wear mask-type goggles with soft, flexible rubber frames, plastic face shields, rubber gloves, rubber boots, and rubber aprons. The plastic face shield is recommended as an added precaution to prevent the solution from being splashed on portions of the face not protected by the goggles.

10. Workers doing steaming operations should wear rubber boots, waterproof gloves, rubber aprons, and mask-type goggles. Asbestos hand pads or gloves should be worn by men who handle the hot drums.

## General Cleaning Procedures

11. Drums and other small containers should be cleaned in the open to minimize the accumulation of flammable vapors in the cleaning area. If the cleaning must be done indoors, the cleaning area should be mechanically ventilated so that flammable vapors will be completely removed. All sources of ignition should be

removed. Electric motors, electrical equipment, and heating devices may be sources of ignition.

12. As the first step in the cleaning procedure, the container should be emptied and drained of as much of its content as possible. The inside of the container should be examined for rags, waste, or other debris that might interfere with free draining. Hammering the container with a wooden mallet will help loosen scale and other debris from the inside.

13. All the residue, such as sludge and sediment, should be disposed of safely by being destroyed on an appropriate burning ground or disposed of in dumps or pits designated for that purpose.

14. If a container is divided into compartments, each should be treated with the same caution, regardless of which compartment or how much of the container is to be worked on.

### Cleaning with Water

15. When containers have held such substances as alcohol, acetone, anhydrous ammonia, and others known to be readily soluble in water, the containers may be cleaned by being completely filled with water several times and drained. Water soluble acids may also be removed in this manner. Care must be taken to remove all traces of the acid, since diluted acid frequently reacts with metal to produce hydrogen.

### Steam Cleaning

16. Containers that have held substances which are not readily soluble in water may be treated with a hot caustic soda or soda ash solution (1 pound of caustic in each gallon of water) and steamed to make the container clean and free of all vapors or substances that might produce vapors or gases.

17. Aluminum or other containers made of light gauge materials and containers that are galvanized on the inside should not be treated with hot caustic soda or soda ash. Trisodium phosphate (2 to 4 ounces per gallon of water) makes a satisfac-

tory solution. The proper amount of chemical should be dissolved in hot water before the solution is poured into the container.

18. The container should be filled one-fourth to one-third full with the solution and then agitated enough to ensure thorough flushing of the interior surfaces. After the container has been thoroughly drained, it is ready for steaming.

19. All openings in the container, with the exception of the drain and filling connection or vent, should be closed. Damp asbestos, damp wood flour, or a similar material may be used for sealing cracks and other damaged areas.

20. A container with only one opening should be positioned so that the condensate will drain from that opening, into which the steam hose is inserted. A container with two openings should be positioned so that the condensate will drain freely from the vent opening. The steam is blown into the container through the drain opening.

21. Exposed steam lines, where possible, should be insulated or otherwise guarded. The area around the container should be roped off or properly marked to prevent accidental contact with the hot metal surfaces.

22. A steam hose not less than  $\frac{3}{4}$  inch in diameter should be used. Steam pressure should be controlled by a valve at the supply end of the hose.

23. Steaming should be continued until the container is free from odor and the metal parts are hot enough (about 170 F to 180 F) to permit steam vapors to flow freely from the container without condensation.

24. After the container has been steamed, the inside should be thoroughly flushed with hot water. The outside should be washed with hot water and the container then thoroughly dried.

### Inspecting and Testing

25. The inside of the container should be inspected to determine if it is clean. An inspection light

for inspecting barrel and tank openings may be used for this purpose. Such a light should be explosion-proof and approved by a recognized agency as being safe for use in the presence of flammable vapors. If the inside of the container shows signs of scale, sludge, or rust, the cleaning operation should be repeated.

26. A combustible gas indicator should be used to test for vapors in the container. If the test shows no evidence of vapor, the container is clean and safe for hot work. If there is any evidence of vapor, the cleaning procedure should be repeated.

### Cleaning without Steam

27. Where steaming facilities are not available, the container may be cleaned with a cold water solution of trisodium phosphate (6 ounces of trisodium phosphate per gallon of water). The solution should be agitated by rolling the container.

28. Since this method is not as efficient as steam cleaning, as an added precaution the container should be filled with water before welding or cutting is done. The container should be positioned so that the water comes as close as possible to the point where the welding or cutting is to be done. The space above the water level must be vented to allow the heated air to escape.

### REFERENCES

*Safe Practices for Welding and Cutting Containers That Have Held Combustibles*, American Welding Society, New York 18, N. Y.

*Cleaning Petroleum Storage Tanks (Sections A and B)*, American Petroleum Institute, New York 20, N. Y.

*Hazardous Location Electrical Equipment List*, Underwriters' Laboratories, Inc., Chicago 11, Ill.

### ACKNOWLEDGMENT

The original draft of this Data Sheet was prepared by the Southwest Chapter of the American Society of Safety Engineers, Dallas, Texas. Subsequent drafts were reviewed by the Engineering Committee of the Petroleum Section, National Safety Council. It also has been extensively reviewed by Council members and representatives of chapters of the American Society of Safety Engineers. It has been approved for publication by the Publications Committee of the Industrial Conference of the National Safety Council.

Look to

**WILLSON**



for the ***NEWEST*** developments in head protection



# At the **WILLSON** Research Center,

Many a dummy's head is cracked to keep real heads safe in Willson Super-Tough safety hats and caps. Willson researchers spend hours bombarding their best products with steel balls and sharp-pointed plumb bobs. Hard hats soak in electrified salt water, the targets of high tension current. There are flame tests, water absorption tests too—all part of the scientific torture hard hats go through at the Willson Research Center.

No work was ever done more seriously. This is how we find out just how good Willson Super-Tough hats and caps are. And this is how you can be sure Willson safety equipment will live up to its reputation . . . the best and most modern sold today.

## Geodetic Suspension Reduces Impact By Spreading It



Willson's Geodetic Suspension protects the wearer's skull and brain from damage possible when impact is concentrated in one spot. Strong nylon-web straps

form widely-spaced, criss-cross paths for impact to follow. They spread impact-force over a maximum area, decreasing the amount of shock at any one point on the head's surface. Geodetic Suspension's self-bracing action keeps the hat always away from the wearer's head, even under the force of wallops that knock ordinary hats off center, smash them against the fragile skull they are supposed to protect.

## Pneumatic Headband's Unique Operation Dissipates Lateral Blows



Twelve vinyl plastic air cells between the sweatband and hat shell are connected by tiny passages. A blow at any one point forces air from the cell hit into the cells on either side of it, and on around the

full circle of the headband. Thus the blow is cushioned and resisted most strongly where it occurs, weakened and spread completely around the headband by the pressure it causes in all the other air cells.

The pneumatic headband is a comfortable cushion fit on any head. Size is regulated simply by increasing or decreasing the amount of air in the cells with a self-contained, self-sealing valve.

## Willson's Close Cooperation With Cornell Aero Lab Brought These Two Achievements to Industry

Willson's Geodetic Suspension and Pneumatic Headband were developed in extensive tests at the Cornell Aeronautical Laboratory—a \$10,000,000 a year, 1,000-man scientific operation devoted exclusively to safety research. Close cooperation between Cornell Aero Lab's research staff and Willson's Research Center enabled Willson to make these two significant protection devices available for the first time to industry everywhere.

## New Super-Tough PHENOLIC Safety Hats and Caps



Toughest hard hats ever tested by Willson Research Center. Impact resistance superior to fiberglass and plastic. Phenolic hats are built up of laminated, phenolic-impregnated canvas, preformed and molded under heat and pressure. Their tough construction far exceeds strict Federal penetration and flammability requirements. The phenolic hat with Willson's geodetic suspension makes an ideal safety combination. Also available with regular suspension of 1,000 lb. test nylon webbing, in snap-in and lace-in styles. Hats available in natural color only.

With standard-type suspension.  
Hats \$4.40 Caps \$4.00

## Willson Fiberglass Super-Tough Hats and Caps



Willson Fiberglass Super-Tough Hat and Cap shells are molded in five colors—Green, Gray, Red, White and Yellow—of Fiberglass reinforced plastic. The smooth contour of the crown deflects falling objects and reduces the force of the impact. This design provides high clearance between the crown of the hat and the top of the head with low overall height. Critical points are extra-thick, giving increased protection without any noticeable increase in weight.

# HARD HATS Get Hard Treatment

Fiberglas Super-Tough Hats and Caps meet or exceed all standards for high impact strength, pierce resistance and dielectric qualities required in Federal Specification GGG-H-142b. Lightweight comfort, good looks and balanced feel will make them a favorite with your men.

Willson Super-Tough Fiberglas Hats and Caps are available with geodetic suspension or a new standard-type suspension. The crown straps are sturdy, lightweight Nylon tapes. The suspension is equipped with six stainless steel clips which secure it quickly and easily to plastic covered, tempered aluminum rivets in the hat shell. The perspiration-proof vinyl sweatband is easily adjustable to exact head size and is three layers thick for extra comfort and protection.

With standard-type suspension.  
Hats \$4.40 Caps \$4.00

## Super-Tough Insulating Safety Headgear



This all plastic Super-Tough Hat meets fully the exacting requirements of the specifications of the Edison Electrical Institute for Insulating Safety Headgear for Electrical Workers. The shell is injection molded in one piece of lightweight, tough, moisture-proof, resilient plastic. There are no seams, joints or holes—its strength is uniform throughout. The slightly larger crown provides an extra margin of safety between the shell and the head.

The new Insulating suspension features the geodetic crown strap assembly and is mounted in the hat with six plastic "keys" which fit into slots molded into the shell. It can be removed quickly and easily for cleaning or replacement. The headband is perspiration-proof vinyl and is adjustable to exact head size. *No metal is used anywhere in the construction of the hat or the headgear.*

Super-Tough Insulating Hats and Caps are available in two colors—Yellow and White.

Standard with Insulating suspension.  
Hats \$5.40 Caps \$5.40

## Willson Super-Tough Safety Hat and Cap Accessories

### • CHIN STRAP

Heavy duty elastic chin strap, complete with attachments and adjusting buckle. Specify style number of hat or cap "with chin strap".



### • WINTER LINERS



Two styles of winter liners are available for Super-Tough Hats and Caps. Style WL-1 is slotted in six places for attaching it in the hat between the shell and the sweatband. Style WL-2 is similar in design except that it is not slotted and is worn directly on the head with the hat or cap over it. There are three sizes available—small, medium, and large—and the liner can be worn with any style hat or cap.

### • LAMP BRACKET



Installed on hat or cap by factory at additional cost. Specify style number of hat or cap "with lamp bracket".

### • NO. V7 CAP ATTACHMENT PROTECTO-SHIELDS

### • NO. V8 HAT ATTACHMENT

Willson's complete line of transparent plastic and wire screen face shields may be attached to Super-Tough Hats and Caps. Transparent plastic visors may be obtained in 4 inch, 6 inch, and 8 inch lengths, and in either .040 inch or .060 inch thicknesses. They are available in clear and in two shades of green. Wide flare plastic, and wire screen visors are available in 6 inch or 8 inch lengths. Protecto-Shields and Welding Helmets are interchangeable on Super-Tough Caps.



### • NO. 7 WELDING HELMET ATTACHMENT

This attachment holds welding helmet securely in either the welding position or up over the cap. The snap fasteners release easily and quickly for removal of the helmet from the cap. Can be installed on Cap at factory or is obtainable as a kit for installation in the field. When ordering, specify style number of helmet that is to be attached to Cap. Can be furnished assembled with any Willson Helmet except No. 510.



# ... products of **WILLSON** research center

Wherever you may be . . . you can get speedy local service on Willson's complete line of industrial safety equipment through these 93 Willson Distributor Outlets.

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Toronto, Montreal, Ottawa, Edmonton, Vancouver, Halifax, Trail, Winnipeg, Regina, Calgary

## • pioneer in safety for industry

The continuing efforts of the Willson Research Center are your assurance that the quality Willson products you buy are the most modern on the market.

Today's extensive line of Willson safety equipment stems from five generations of this same intensive research and development. Each of the more than 300 products now bearing the Willson trademark reflects the quality and craftsmanship of 86 years devoted exclusively to the manufacture of protective equipment.

Call the Willson Distributor nearest you today for complete details on Willson products for industrial safety—or write directly to Willson for your free catalog of eye, respiratory and head protection equipment.

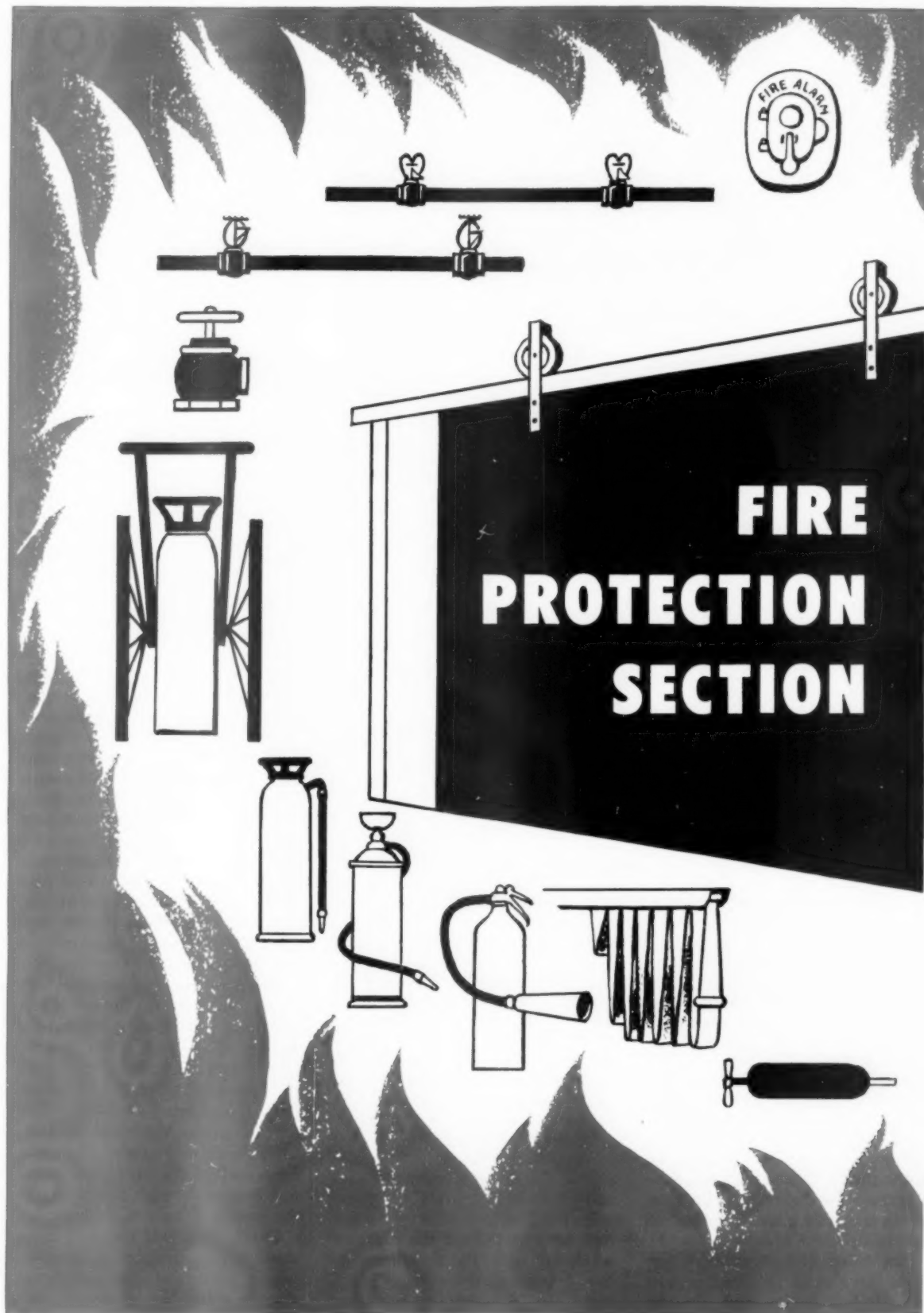
# WILLSON



Over 300 safety products  
carry this world-famous  
trademark

**PRODUCTS DIVISION**

**Ray-O-Vac Company, Reading, Pennsylvania**







**FIRE DETECTION** devices can transmit alarms to a central station within the building. Here the alarm panel is above the main telephone switchboard and designates which protected zone of the structure is reporting fire. (Illustrations, unless otherwise noted, courtesy Walter Kidde & Co.)

## Early Detection Cuts Fire Losses

**Automatic detection devices can sound alarms, turn on lights, shut off equipment, close doors, put out fires, and save you money on insurance premiums**

**S**TUDIES of large loss fires show that time after time the blaze was well advanced before it was detected or that valuable time was lost by first-aid fire fighters waging a losing battle against the incipient blaze. Only when it grew into a roaring inferno was the blaze reported to the municipal fire department. In the majority of cases, by the time qualified fire fighters arrived on the scene, the blaze was out of control.

According to authoritative figures, there were 316 fire losses in the United States and Canada

(includes aircraft) during 1955 with individual losses of at least \$250,000. Of these, 61 were losses of over \$1 million each. Add to these statistics 42 deaths and 615 injuries as a result of these fires (does not include aircraft fatalities or injuries).

Of the fires that can be classified in the industrial or mercantile fields, 163 of them were delayed in their discovery. In 119 of these instances, the structure concerned had been closed for the night or weekend with no watchman or fire protection-detection equipment. In 30 cases, fire reporting

was delayed due to inadequate watchman coverage. Finally, in 77 cases where the fire was discovered promptly, this advantage was lost due to delayed reporting of the blaze.

In the great majority of these cases, the property losses, deaths, and injuries never should have occurred. Personnel in the fire safety field have been preaching a simple three-way remedy for years: Have automatic equipment to give an early warning of a fire. Report it promptly to the local fire department. Have automatic fire extinguishing equipment available . . . water sprinklers, carbon dioxide systems, etc.

These three "musts" are complementary and necessary. All are so desirable that it becomes impossible to list them in a descending order of importance. However, the statistics above indicate that if a fire is detected in its infancy (immediately reported and promptly attacked by qualified fire fighters) the chances of its becoming a "large loss" are minimized.

Let's look at the most used methods of automatic fire detection. First comes smoke detection. Most fires have one thing in common—smoke. Even deep-seated smoldering fires with very little heat can be detected with this type of analyzing equipment. These devices will give an alarm probably before any flames are available.

Smoke detection equipment is flexible in arrangement and permits a single room, several rooms, or a very large space (such as a zoned warehouse) to be protected simultaneously.

For purposes of illustration let's assume that several storage rooms are being protected by smoke detection. Each space has one or more smoke accumulators which are connected by piping (separate line for each space) to a centrally-located smoke detection cabinet. In sequence air samples are drawn from each of the protected spaces and passed through the piping to the smoke detection cabinet.

There each sample is passed through an analyzer tube comprising a beam of light and photoelectric cells. If any sample con-



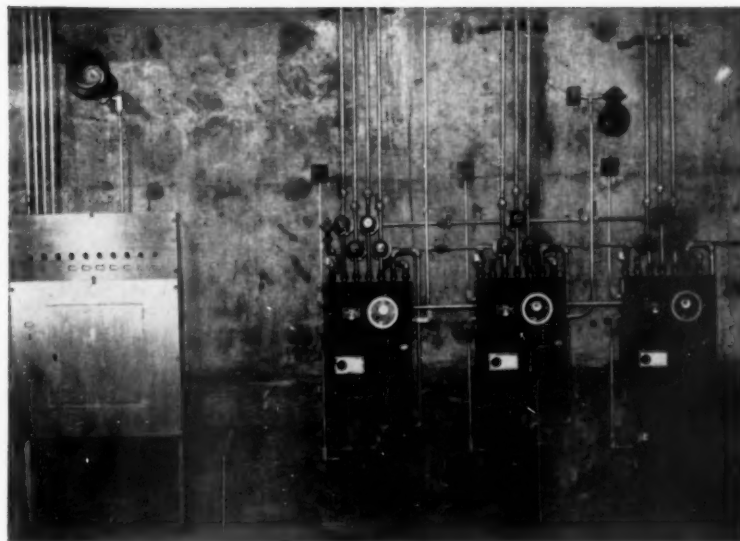
**ALL FIRE** detection devices described in this story can be tied in to a central alarm system. This means the signal can be flashed to a central station or municipal fire headquarters. (Gamewell Co. photo)

tains smoke, the smoke reflects light onto the photoelectric cells and increases their output. The increase in output causes an alarm to sound and an indicator on the cabinet designates from which protected space the smoke-laden sample was drawn.

Alarms for smoke detection systems may ring locally only, be flashed to a central station or to municipal fire headquarters. Devices can be provided with smoke detectors which upon an alarm cause lights or other electrical equipment to be turned on or off, doors to close or open, and the like. Also available are battery units which in the event of an electricity failure automatically provide power for the uninterrupted operation of the smoke detector.

Another type of detecting device utilizes a radioactive element in a small ceiling-mounted chamber and operates when a change in ionized air takes place. This change occurs upon the presence of smoke or heat and sends the alarm signal to a monitor panel located remote from one or more of the detecting devices.

Another type of fire detector operates on the temperature-rate-of-rise principle. In a typical installation any undue temperature rise in a protected space causes an expansion of air in inconspicuous



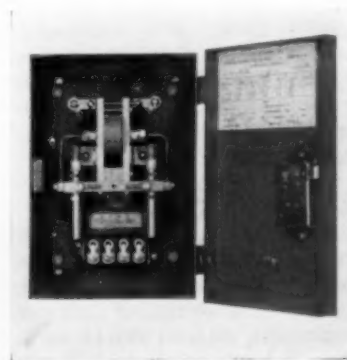
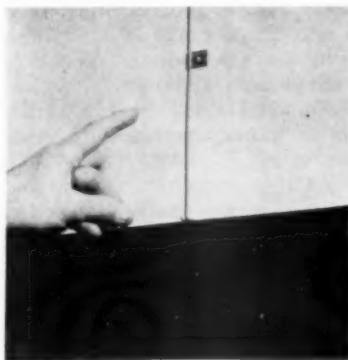
**SMOKE DETECTING STATION** in large Cleveland water purifying plant. Each protected space has one or more smoke accumulators connected by piping (separate line for each space) to centrally-located smoke detection cabinets. In sequence, air samples are drawn from each room and passed through piping to detection cabinet, where a beam of light and photoelectric cells trigger an alarm if smoke is present. Each cabinet contains an indicator designating source of smoke-laden sample. Note alarm "howler" at upper left.

copper tubing mounted on the ceiling of a protected space. The two ends of the tubing terminate at a detector. This expanded air moving in opposite directions through the tubing enters the detector and acts on two opposing diaphragms. The pressure forces them together and closes an electrical circuit which sounds an alarm. If a number of spaces are being protected a designator indicates which one is reporting trouble.

Incorporated in a detector's de-

sign are features which eliminate the possibility of false alarms from normal temperature changes and even sudden short surges of heat. The fact that this equipment works on the temperature-rate-of-rise principle makes it most versatile. It makes no difference whether the circuit tubing is in a refrigerated area where the temperature may be 10 F. or in a heat treating department where the thermometer registers 100 F. It

—To page 137



**THE TWO ENDS** of this tubing terminate at a detector (photo at right). Air expands when fire flashes and moves through the tubing in opposite directions, entering the detector and forcing two elements together. This triggers an electrical alarm. Tubing can be concealed along moldings and painted over without lessening its efficiency.

# Inspect and Protect



**A real inspector doesn't stop with routine checking of equipment.  
He understands what he sees and anticipates possible accidents**

**I**NDUSTRY has changed enormously in recent years. Processes are more complex. New products are being introduced increasingly, often with added hazards. In plant construction the trend is toward larger open areas. There are frequent changes in both operations and personnel.

Have fire protection techniques and equipment lagged behind in the parade of industrial progress? Has industry created hazards faster than it has developed methods of controlling them?

A comprehensive review of the industrial fire record and an analysis of fire causes indicate that in most cases adequate protective equipment was available. Too often, however, it was not used or it failed to function in an emergency. Often the human element fails. Employees were not trained to use the equipment or it failed because of neglected maintenance.

Are inspection procedures adequate?

Perhaps the scope of the term "inspection" has been too narrow. Too often it has included merely routine checking of physical equipment, such as valves, sprinklers and extinguishers, with perhaps a casual appraisal of the housekeeping.

The type of inspection that really protects a plant against fire

must cover more than this. It needs sufficient imagination to anticipate all possible accidents. Inspection must precede the actual construction of the plant and continue as long as people work there—or as long as a building remains standing, since vacant structures are frequently involved in fires that menace other property.

Inspection actually begins when the plant is in the idea stage and with the preliminary sketches of the engineers and designers. But in planning fire protection measures the engineers must have something tangible to work on.

Flow sheets provide a basis for fire protection plans as well as for plant layout and materials handling. These range in complexity from a mere listing of materials and process steps to a detailed operational layout with sketches of machines, templates or scale models.

At this stage, fire safety consciousness on the part of those making the plans and carrying them out will mean a safer plant. These factors should be considered:

- Fire-resistant building construction
- Fire walls and fire doors
- Water supply
- Automatic sprinkler protection
- Explosion vents

- Flash arrestors
- Grounding
- Automatic detection and warning systems
- Explosion-proof equipment
- Storage of flammable substances
- Disposal of combustible waste

When the plant is still on paper, there should be frequent inspection of the drawings and specifications to make sure that buildings are properly located, that unnecessary hazards are avoided, and that adequate protection is provided.

In multi-plant operations it is desirable to have a central office review all plans to insure compliance with state and local codes and company standards. Approval of insurance underwriters should also be obtained at this point. A final review meeting attended by insurance representatives, project engineers, operating personnel and fire and safety specialists is frequently held.

When construction begins, new problems are introduced. When bids are being secured from contractors, they should be notified of the company's fire and safety regulations and the limitations that will be imposed.

Formal contracts usually contain a general statement requiring compliance with company fire and safety rules. In addition, there

# FIRE!

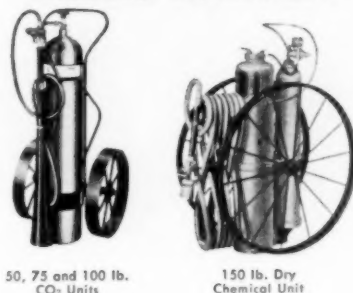
## HOW TO DETECT AND EXTINGUISH IT IN SECONDS!

### HAND PORTABLES



Kidde CO<sub>2</sub> Portables, either trigger-release type or squeeze-type valve models, are available in sizes from 2½ to 20-pound capacities. New Kidde Wet Chemical extinguishers are available in 2½ gallon bronze or stainless steel models, including pressurized Water or Water-Anti-Freeze Unit (illustrated). Kidde Dry Chemical Extinguishers are available in cartridge-operated models of 20 and 30 pounds capacity or pressurized models of 5 and 10 pounds capacity.

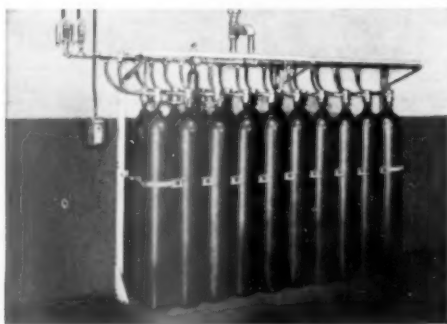
### MOBILE EQUIPMENT



For major fire hazards, get a mobile unit. Wheeled CO<sub>2</sub> units are available in 50, 75 and 100 pound capacities, in one cylinder.

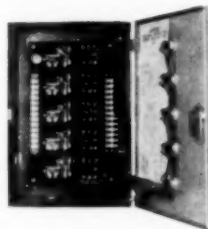
150 pound dry-chemical unit has straight stream for long range... fan pattern for wide coverage. Both units give expert results even with inexperienced operator.

### CO<sub>2</sub> SYSTEMS



New Kidde pressure-operated CO<sub>2</sub> extinguishing systems are individually designed to fully protect even the most dangerous hazards, use no falling weights or clumsy mechanical triggering methods. Pneumatic Control Heads insure instant and complete CO<sub>2</sub> discharge. Directional Valves afford protection to more than one hazard using the same bank of CO<sub>2</sub> cylinders.

### ATMO DETECTING SYSTEMS



Kidde ATMO is a wide-area automatic fire detecting and warning system which works on the principle of rate-of-temperature-rise. It is ideally suited for cases where life protection is of vital importance, or where quick, early detection of fire in valuable materials is essential.

The very first hot breath of fire triggers the ATMO system, and sounds the alarm. In addition, the system can also close doors, shut off fans or blowers — all *automatically*.

What's more, the Kidde ATMO system operates independently of regular power sources, will still give protection even if outside power fails.

**Kidde** 

Walter Kidde & Company, Inc., 745 Main Street, Belleville 9, N. J.

Walter Kidde & Company of Canada, Ltd., Montreal-Toronto





**REGULAR INSPECTION** of equipment and frequent demonstrations of fire-fighting techniques keep both men and apparatus ready. (The Reading Company)

should be a detailed description of the hazards and the precautions required for the guidance of the contractor and sub-contractors. If the list is specific and its importance understood by the contractor before the bid is submitted, and if it is reviewed in detail before work starts, the inspector will usually have little difficulty in obtaining cooperation.

The contractor, of course, is interested in getting the job done quickly at the lowest possible cost. But reputable contracting firms are also interested in future jobs. They know that if their work is unsatisfactory and if they have trouble with fire and safety inspectors, their chances of getting future business are greatly reduced. Advising the contractor of hazards in the work area in advance and regular thorough inspections of the job site will reduce costly construction fires.

After a plant has been built, or a new process and equipment installed, detailed operating instructions should be prepared. These should contain a description of inherent hazards and the required precautions.

At this stage inspection requires that procedures be always available to operators and others who may need them, not tucked away in somebody's desk drawer. There should be frequent review of details by operating supervision and technical personnel.

Constant vigilance is needed to prevent dangerous short cuts creeping in. There must be understanding of instructions by the operating group, not only ability to carry them out but also appreciation of their importance and significance. Relaxing vigilance anywhere along the line may result in a disastrous fire.

General plant fire and safety rules and operating instructions are the basis of the protection program but it is often advisable to supplement these with specific rules for certain areas. These are especially useful in plants where labor turnover is high or where new maintenance men may be assigned work in an operating area. These special rules should be posted in conspicuous locations for quick reference and review.

Inspection here is more than routine checking of mechanical equipment. It includes the more difficult job of making sure that foremen instruct their men thoroughly in fire safety rules.

Even normal maintenance work may introduce fire hazards. To provide adequate control a system of work permits is essential. Such a system can provide a self-inspection check list for the crew. The permit should cover the use of open flames, exposure to flammable, toxic or corrosive materials, to work performed under abnormal temperatures, and to entering all confined spaces where

explosive vapors or irrespirable atmospheres may be encountered.

Supervisors and men should have a thorough respect for the work permit system. They should question any job that seems hazardous and demanding a properly issued work permit before starting work. When employees

—To page 61





**MANY JOBS** in fire fighting are not for the amateur and handling a hose stream is one of them. In Anderson, Ind., the city fire department visits local industries and helps in training plant brigades.

# FOES OF FIRE

## *Men, Methods and Equipment Keep Down Losses*

**FIRE**, as defined for fire protection purposes, is combustion in the form of flame, with light and heat as important by-products. The three points of the fire triangle, commonly used in teaching fire protection techniques, are fuel, air and heat—or fuel, oxygen and ignition. However, as a basis of planning fire control measures, they are hardly adequate.

Expanding these to six factors, we have additional information on what makes fire possible and what keeps it going. (See "Fire Protection by Prescription," NATIONAL SAFETY NEWS, September 1955, p. 28.) The six factors are:

1. Input heat
2. Fuel—must be a gas or vapor
3. Oxygen—usually from air

4. Mixing—essential to rapid combustion
5. Proportioning—for rapid combustion
6. Continuity of ignition

Eliminate or interrupt the supply of any of these factors long enough and the fire will inevitably go out.

The flame, when produced, becomes the source of input heat needed to maintain the fire. The input heat distills flammable gases or vapors from solids such as wood, coal, cloth, etc., or from oils and chemicals.

Input heat may originate from a variety of sources. In a study of nearly 20,000 fires over a seven-year period, Factory Mutual Laboratories found the following causes of industrial fires:

	Per cent
1. <b>Electrical</b> —Lack of maintenance or use of wrong type of equipment in hazardous areas	19
2. <b>Friction</b> —hot bearings, misaligned or broken machine parts jamming of material, poor adjustment of power drives and conveyors	14
3. <b>Foreign substances</b> —Tramp metal in machines causing sparks, particularly dangerous where finely divided combustible materials are processed	12
4. <b>Open flames</b> —Cutting and welding torches, gas and oil burners, blow torches, misuse of flammable liquids	9
5. <b>Smoking and matches</b>	8
6. <b>Spontaneous ignition</b> —Oily waste and rubbish, deposit in ducts and flues, storage of materials, industrial wastes	8



**DISPLAYS** featuring the plant protection program are helpful to fire prevention and safety generally. This exhibit includes fire hose, extinguishers, gas masks and rescue basket.

7. **Hot surfaces**—Combustibles too close to normal heat from boilers, furnaces, hot ducts or flues, electric lamps and irons, hot metal being processed 7
8. **Combustion sparks**—From burning rubbish, foundry cupolas, engine stacks, furnaces and process equipment 6
9. **Overheated materials**—Caused by abnormal process temperatures involving such materials as heated flammable liquids and materials in dryers 3
10. **Static electricity**—Dangerous where flammable vapors may be found 2
11. **Miscellaneous**—Includes molten substances, lightning, chemical action and incendi- arism 5

In seven per cent of the cases covered in the foregoing study the cause of the fire was not determined because evidence was conflicting, or insufficient to warrant definite conclusion.

### Types of Fires

For purposes of control and extinguishment, fires are classified in three main groups:

**Class A.** Fires in ordinary combustible materials, such as wood, paper, textiles, and rubbish. These require the quenching and cooling effects of water or solutions containing large proportions of water.

**Class B.** Fires in flammable liquids, such as gasoline, solvents,

oil, grease, paint, varnish, lacquer, etc. Here a blanketing or smothering effect is required.

**Class C.** Fires in electric equipment, such as motors, generators, and switch panels. The extinguishing agent must be a non-conductor of electricity.

### Extinguishing Agents

Extinguishing agents in common use are water, foam, carbon dioxide, dry chemical and vapor-

izing liquid. Each of these can provide protection against fires for which it is suitable through hand or wheeled apparatus and through fixed systems.

Water is the most plentiful, cheapest and most generally useful extinguishing agent. Although growth of population and industry's expanding needs are causing increasing concern about future water supplies in some parts of the country and drought may cause temporary local shortages, water supplies for fire protection are generally adequate. Plans for disaster control, either in war or peace, take into consideration the availability of adequate water for fire fighting.

**Automatic sprinklers.** Among the various defenses against fire, insurance companies place automatic sprinklers in the front rank. Their performance has been impressive, since their first appearance back in 1875, they have done more to protect property and employees' lives than any other single factor.

Sprinklers, properly installed and maintained, are always on guard, ready to go into action when fire starts. They get at the heart of the fire, where men with hose or hand extinguishers could



**SPECIAL HAZARDS** call for specialized equipment. Here Dravo Corporation fire fighters learn operation of foam generating system.



## Veteran Chief takes post-graduate training at Ansul fire school...you can too

Throughout his entire career, Floyd Dumas has practiced what he preached... *you can't have too much fire training*. So it was logical that this veteran of 29 years' experience should attend Ansul's Fire Training School. As Chief of Fire Prevention for Parke Davis & Co., one of the nation's leading manufacturers of pharmaceuticals, his responsibilities are tremendous. The information Floyd took home from the Ansul School was passed on to each member of his staff who will be better firefighters for it.

You too can have this training. Ansul is the nation's pioneer in the field of fire training, and the only manufacturer to offer this important service to its customers. It is just one of many "extra" services made available to all Ansul users. And there is no charge

whatsoever. Since 1940 this unique school has graduated over 2,800 students from all over this hemisphere, parts of Europe, Asia, and the Middle East.

Training at the Ansul Fire School is of the practical kind. The classroom is Ansul's five-acre test field containing all the latest equipment, and staffed by expert instructors. You owe it to your business, to your position, to learn more about the Ansul Fire Training School.

Get in touch with your local **ANSUL MAN** through the yellow pages of your phone directory, or write to **THE ANSUL CHEMICAL COMPANY, DEPT. NS-7, MARINETTE, WISCONSIN.**







**FIRE PROTECTION SCHOOLS**, conducted by equipment manufacturers, train industry's representatives in techniques of extinguishment to form the nucleus of plant organizations. These men are learning the use of dry chemical extinguishers. (Ansul Chemical Company)

not go. And they act while the fire is still a small one. Sprinklers have prevented countless fires from becoming conflagrations. Many times they have meant the difference between a few minutes' interruption and a costly shutdown.

Sprinklers are recommended for these types of occupancy:

All buildings with combustible floors or roofs, even if all other parts of the building and its contents are non-combustible.

Non-combustible buildings wherever contents are combustible.

Areas where flammable liquids are stored or used.

Combustible concealed spaces, including low attics and roof spaces.

Ovens, drying enclosures, large ducts, spray booths, paper machine hoods, and similar process enclosures where fire is likely to occur.

Stock rooms, closets and similar enclosures of combustible construction or containing combustible material.

Under storage shelves, cutting tables, or ducts more than four feet wide.

Whenever alterations leave areas unprotected or increase fire hazards.

**Water supplies.** Back of automatic sprinkler systems and hose streams there must be reliable water supplies adequate in both volume and pressure. Volume requirements should be based on the number of sprinkler heads likely to open, as well as hose streams. Pressure should be sufficient for top-story sprinklers.

Two independent water supplies are needed at most plants. The primary supply furnishes water immediately when the sprinklers open. The secondary supply functions when the primary is out of service or reinforces in an emergency.

Public water systems are generally the best primary supplies. Connections from two different street mains are desirable. This provides a greater volume of available water and lessens chances of interruption if one of the street mains should be out of service.

Fire pumps are the most satisfactory secondary source. They can deliver water at high pressure for a long time. They should be located where they will not be put out of service by any fire likely to occur in the plant. Power for the pumps must be available at all times and so arranged that it will not be interrupted by a fire.

Gravity tanks are used as primary supplies when water from public mains is not available or the pressure is low. They are also used as secondary supplies when a fire pump is not practical. Tanks must be elevated to give adequate pressure for the top sprinklers. They should be reserved for fire only and kept full. Water levels should be checked at least weekly. In cold weather heat should be provided to prevent freezing.

### Water Spray

Many fires which cannot be put out with a solid stream of water can be extinguished with water spray, sometimes called fog. The water is applied with various types of nozzles which are available for both small and large hose.

Some nozzles are adjustable to give either a solid stream or a

—To page 52



**FREQUENT DRILLS** keep the plant fire brigade on its toes mentally and skillful in handling equipment. Here they are studying types of nozzles and the use of hand extinguishers. (Pure Oil Company)

# Here's your "Task Force" for any type of fire

**Complete team of Rockwood portable products combines speed, versatility and economy**

Separately, each of these Rockwood products has its own particular advantages for fighting various types of fires. Together, they make a mobile, multi-purpose task force that delivers a whole of a lot of protection against any type of fire, whether it's Class A (wood, paper, rags,

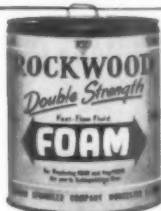
etc.), or Class B (flammable liquids). That includes personnel protection, too, because safety for the men who use them is an essential factor in all Rockwood fire fighting products.

Rockwood's long, practical experience and constant research bring you not only new *efficiency* but new *economy* in fire-fighting methods and equipment. It will pay you to learn more about these and many other Rockwood products. Mail the coupon today for complete information on Rockwood's specialized fire-fighting products.



\* **Type SG-60 Nozzle.** A true all-purpose nozzle that fights fire 5 ways. It discharges high velocity WaterFOG, low velocity WaterFOG (with applicator), FogFOAM, solid stream of water or solid stream of FOAM.

**FOAM and "Wet" Educator** with the new **FW Metering-Check Valve.** Introduces Rockwood FOAM or "Wet" into hose lines, automatically proportioning correct amount of FOAM and "Wet" to water. Also usable wherever one liquid is fed into another on a fixed percentage basis.



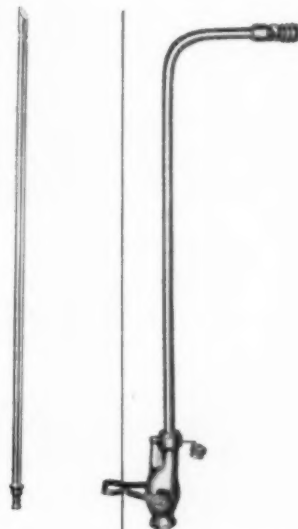
\* **Rockwood Double Strength FOAM.** Puts out fires in flammable liquids, and in ordinary combustibles, quicker, at lower cost. Three parts FOAM and 97 parts water create a tremendous heat-resistant blanket. Flows freely at -15°F.



\* **Rockwood WET.** One part WET mixed with 99 parts water increases water's penetration and extinguishing action. Gives quickest results against deep seated fires. Saves time, water, manpower.



**FF Extension Unit.** Shown with Type SG-60 Nozzle. Discharges Rockwood FOAM in a solid stream or as FogFOAM. Wide angle makes it possible to cover large areas at one time.



\* **Bayonet Piercing Applicator.** Has a hardened steel cutting tool attached to tip, enabling operator to pierce through partitions, into interiors, etc. Discharges low velocity WaterFOG or FogFOAM.

\* **Long Extension Applicator.** Discharges low velocity WaterFOG in an umbrella pattern, smothering fire without causing turbulence to flammables. Excellent personnel protection is another advantage.

\*NOTE: The products shown here have all been Tested and Listed by Underwriters' Laboratories, Inc.

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**MANY TYPES** of mobile in plant fire-fighting units have been devised, ranging from small hand trucks to motorized vehicles that rival the city fire department's. This one is equipped with tank and fire pump with adjustable nozzles for high pressure fog (spray) delivery. It can be operated in plant aisles. A foam tank, ladder, axes, lights, siren and hand extinguishers can be added. (Photo by John Bean Div., Food Machinery and Chemical Corp.)



# Training in Mobile Fire-Fighting Equipment

By FRANK C. KLUIBER

**M**OBILE equipment is becoming increasingly important in the over-all fire-protection requirements of an industrial plant. The reasons are obvious. It's also just as obvious that the equipment itself cannot fight fires. A good fire-protection system requires good equipment coupled with men properly trained in correct fire-fighting procedures and in the use and care of their equipment.

To begin our discussion of training programs, we should review

briefly the purpose and basic design of in-plant fire fighters.

Among the purposes of in-plant, self-propelled, mobile fire-fighter trucks are:

1. Quick mobilization of specialized fire-fighting equipment in the immediate vicinity of the fire.
2. Immediate availability of equipment so that the fire-fighting personnel can accomplish their job quickly, efficiently, and with a maximum amount of safety.
3. Provide municipal-type fire protection for immediate use inside the factory. (This is especially important when the plant is located in an outlying area where municipal fire department service is not readily available.)

The design of in-plant units has made them the subject of some good-natured humor. Among the

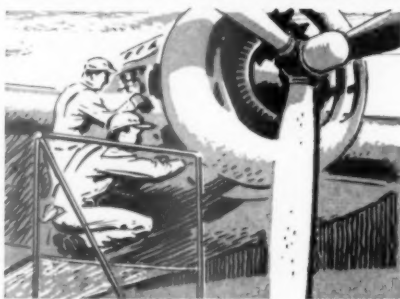
names I've heard them called are: fire bugs, doodle bugs, mighty midgets, and mighty mites. I've heard some plant personnel express a desire to take them home as playthings for the youngsters. Don't be fooled by appearance! These fire fighters are specifically designed to be compact, narrow, extremely maneuverable and to pack a big wallop. They are municipal fire trucks in small packages.

## Styles and Sizes

One unit utilizes a high pressure fog system for smothering fires. It has the same pump, same hose reel, same gun, and same everything else that is used in municipal fire trucks. The only difference is in the size of the water tank and the chassis. The

FRANK C. KLUIBER is Industrial Sales Manager, John Bean Division, Food Machinery and Chemical Corp., Lansing, Mich. This article has been condensed from a paper presented at the Western Pennsylvania Safety Engineering Conference, Pittsburgh, April 11, 1956.

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"X-12" penetrates the fabric completely, gives maximum protection against flame and afterglow. Since "X-12" doesn't seal the pores of work clothing, you get this protection without sacrificing the workers' comfort.

Either industrial or commercial laundries can apply "X-12" in an economical, one-step operation. And being a renewable-type flame retardant, it is reapplied after each washing.

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**IN PEACE** as well as in war, the rugged and versatile jeep, is a dependable worker. One of its many uses is to get extinguishing equipment to the blaze in a hurry. (Ansul Chemical Company)

unit is 48 in. wide, 135 in. long, and has a wheel base of 76 in. Wheel tread width is about 40 in. Total height, including top ladder mounting, is 79 in. Weight is approximately 5,000 lbs.

A smaller in-plant fire fighter truck utilizes a tricycle wheel arrangement. It has a width of 42 in., is 134 in. long, and carries 200 gallons of water. (Or, it can be equipped with a 100-gallon tank to permit carrying a 250-lb. dry-chemical unit.) It also uses high pressure fog.

A third unit is trailer-mounted, designed to be pulled by any shop truck. It has the same operating characteristics as the previous model. Over-all dimensions are: 35 in. wide, 96 in. long, and tread width of 45 in.

The small, compact mobile fire-fighter equipment can be taken to any area in a factory within a matter of seconds, permitting mobilization of equipment at the fire ready for instant operation.

### Familiarization

The first step in the training of fire protection personnel is familiarization.

The quickest and easiest way to accomplish this is to have key personnel attend a fire-fighting school where the equipment is manufactured. These courses usually consist of a two-day program covering the theory of fires;

a discussion of the various types of fires; training in maintenance and operation of the equipment; and actual experience in fighting fires.

Men trained in this type school can then become the nucleus of the training program at your factory or plant. It is of utmost importance that *all* personnel be trained on the fire-fighting characteristics in the in-plant equipment.

The best way to describe a proposed training program would be to outline a procedure for a company with three in-plant fire trucks. Start with a group of five—any more would cause confusion and would not give actual participation in the operation of the equipment.

Familiarization should consist of one hour of instruction in the mechanics and operation of the fire truck, combined with actual driving of the unit inside the factory. This serves a two-fold purpose. It familiarizes the personnel with the driving characteristics and operation of the equipment and it helps them learn the various areas in the factory and the quickest and best way to get there during an emergency.

The second hour should be devoted to the techniques that will be used in operating the actual fire fighting equipment. In other words, developing team work. This helps each man learn the job

he is to perform when going to, and when arriving at, the fire. If you use high pressure fog fire fighting equipment, it is desirable to have the men lay out their 1½ or 2½-in. supply lines from a standpipe direct to the fire truck.

During this time, one or two of the other men are handling the fire guns and fighting the fire, using the 200-gallon water supply carried by the truck. When the supply lines are attached, your firemen will have an unlimited supply of water, thereby insuring continuous fire-fighting operation. This is an important phase of their training because time is an important factor when fighting fires.

The fourth and fifth hour should be spent on actual fires. Three fires that will develop confidence in the equipment and will give an all-around training in typical industrial fires would be the following setups:

1. Build a pit approximately 25x12 ft. and about 2 ft. deep. Fill it about ¾ full with water, and then add scrap oil, kerosene, or fuel, to fill the pit. This should be fired off with some gasoline.
2. The second fire would be a 5x5x8-ft. shanty filled with wax paper, rubber hose, or other scrap material soaked with scrap oil, and fired off with some gasoline or kerosene.
3. A wood pile fire using approximately 500 lbs. of all types and sizes, soaked with 8 to 10 gallons of kerosene. Let the fire burn for 5 to 10 minutes to get a deep burning, then start your training. It is unnecessary to put the fire out completely, primarily to permit rekindling so that at least a half a dozen fires could be obtained from the same pile, before becoming water-soaked or burned out.

It is important to have all fire protection personnel handle the equipment on these fires—work out the desirable procedures and methods and show what happens if not handled properly. When using high pressure fog, for instance, you will find that different nozzle settings work better for different types of fires. This should be illustrated and a definite pattern established so that all fire protection personnel will be thoroughly schooled and trained in the techniques.

The sixth hour should be devoted to fire truck maintenance. Set up a fire truck maintenance



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This dense, flame-smothering, heat-shielding blanket of chemical powder is expelled from Fyr-Fyter's Dry Chemical Extinguisher by the sure force of "sealed-in-power!"

A specially designed diffuser, built into the nozzle, spreads the fire-killing powder in a flat, dense 60° wide angle stream which covers a wide area to envelop and blanket flames faster! This provides more protection against fires in gasoline, petroleum products, paint, varnish, lacquer, turpentine, alcohol, butane, propane, and chemical fires . . . and also hazardous electrical fires! For a longer range stream, the diffuser can be easily removed.

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All Kinnear AKBAR Steel Rolling Fire Doors offer the advantages of

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"Akbar Fire Doors" for openings up to 120 square feet, but not exceeding 12 feet in width, or height, bear the label of the Underwriters' Laboratories, Inc. Doors for large openings will be furnished and upon request the Underwriters' Laboratories will furnish certificate of inspection, for doors covering openings not exceeding 24 feet in either width or height, indicating that their construction conforms to the requirements of the Laboratories.

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check sheet consisting of a daily, weekly, and monthly check requirement. This procedure will insure that your fire-fighting equipment will always be in tip top shape and will give you optimum service when it is required. In addition, it is highly desirable that the fire-fighting personnel and fire brigade develop a keen responsibility and consequent pride in keeping their equipment in first class shape.

There is no question that after completing the first five phases of this training program and realizing the importance of this equipment in the fire protection system of their factory, that they will develop this pride and the subsequent care of the in-plant fire truck.

**Cost of Training**

Like everyone else, you and your management will be concerned with the over-all cost of this operation. To figure the cost let's assume a basic figure of \$2.30 per man hour. Then assuming that five men are taken as a group and that this operation can be accomplished in six hours, the total cost per man is \$13.80 for a total cost of \$69 for a team of five. This is a nominal fee for training that could save millions.

The cost of materials for the actual fires is nothing since scrap materials are used. In fact, you probably will save your company money by burning this scrap rather than paying to have it hauled away. The cost for fire-fighting materials is practically nothing. If you use a high pressure fog system, the only cost is for the water used. Other material, such as chemicals, will require a budget which again will be nominal, depending on the number of teams that will be put through training program.

**Foes of Fire**

—From page 46

spray. Others deliver spray only. This spray may vary from a fine fog to fairly coarse droplets.

Spray nozzles are useful in fighting some types of fires where use of water is not ordinarily indicated. A flammable liquid fire,

for example, in which a solid stream would scatter blazing liquid can be extinguished by spray. It extinguishes such fires by surface cooling if sufficient to bring the temperature of the material below the flash point, and smothering by steam converted from water spray.

Similarly, water spray may be used in fighting fires in or near combustible fibers or dusts where a solid stream might scatter burning materials.

Some types of nozzles are also safe to use on electrical equipment, since a fine spray does not have the electrical conductivity of a solid stream of water. However, water inside live electrical equipment may cause short circuits and it is always preferable to shut off the current, if possible, before bringing the fire-fighting equipment into action.

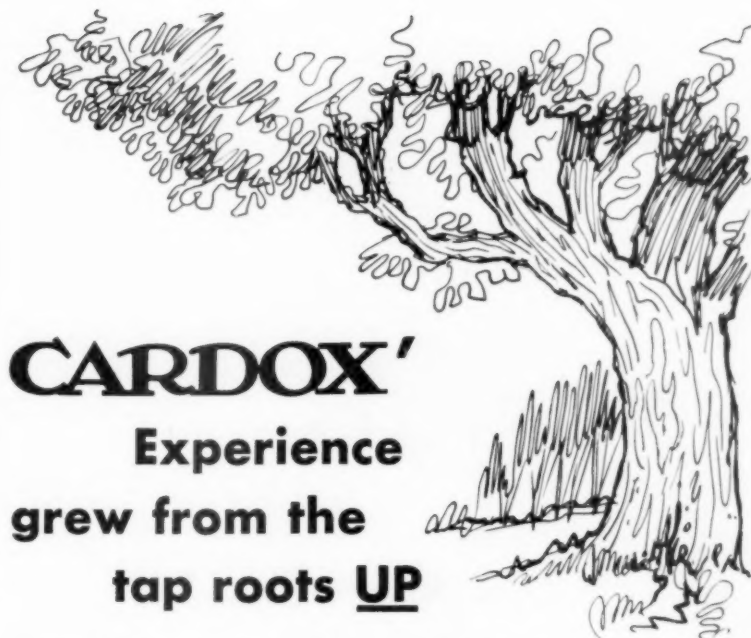
Since the passages used in a spray nozzle are smaller than those used in ordinary nozzles or in automatic sprinklers, they can be clogged easily by foreign material in the water. Clean water should be used and strainers provided in the line.

#### First-Aid Extinguishers

Good fire protection calls for enough fire extinguishers and/or small hose throughout the plant based on the type of occupancy and the fire hazards of the structure and operations. This equipment should be placed so that it will be at hand for a fire at any point. They should be conspicuously marked and easily accessible.

Extinguishers put out approximately one third of all plants insured in Factory Mutuals. Many more are never reported because the damage is slight. But if there is any possibility of the fire getting out of hand, the municipal fire department should be called. "Call received too late" is the sad story of many a disastrous fire.

For special types of fires, as in electrical equipment and flammable liquids, the type of extinguisher suited to the hazard should be selected. The total extinguishing capacity should be adequate. Insurance companies can give the necessary information and the publications of the National Fire



## CARDOX' Experience grew from the tap roots UP

When CARDOX pioneered its first fire extinguishing system, years ago, it was already deeply experienced in the use of low pressure carbon dioxide.

CARDOX created, researched and developed new knowledge and techniques to bring you safer fire protection for your "hot spot" hazards.

With CARDOX Low Pressure Carbon Dioxide Systems,\* extinguishment *itself* is lightning-fast. There is no *extinguishment damage whatever*, nothing to be cleaned up or removed after the fire is out. CARDOX Carbon Dioxide can be applied *in mass* — a few hundred pounds or many tons — for single or multiple hazards, whether similar or diverse. For such hazards as those involving handling, storage or use of flammable, volatile liquids — motors, generators, and other electrical equipment — quench

tanks — paint spraying — record storage, etc. — CARDOX provides a degree and scope of protection difficult or impossible to attain by *any other method*.

In the whole field of fire protection, CARDOX alone has *concentrated* in low pressure carbon dioxide. Its experience is further firmly rooted in thousands of *successful* installations. Every part and component in today's CARDOX Systems is the result and refinement of this unduplicated, continuous experience.

It's no wonder, therefore, that carefully drawn specifications often call for "CARDOX only" — because *only* in CARDOX will you find these years of special "know-how." This is the priceless "extra" you can't buy, except in a CARDOX System.

For further valuable information — or a complete survey of your critical hazards, please write. No cost or obligation, of course.



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Because they're pressurized you can fight fires faster and more accurately! With no pumping, simple one-hand operation puts all the flame-killing liquid where you want it. Simply raise the carrying handle and depress the valve. A powerful, easy-to-control, 30 foot stream expels in 17 to 25 seconds if valve is held down constantly, intermittent operation is also easy if desired.

One and two quart Buffalo "VL" Extinguishers are of dependable all-brass, precision construction. Entire valve assembly and pick-up tube unscrew as a unit from the shell for inspection, cleaning and recharging. Teflon Gaskets assure a positive, leak-proof seal to hold pressure. Stream is expelled by pressurized nitrogen or air. Available with either Carbon Tetrachloride or Bromochloromethane. Buffalo V.L. Extinguishers are Underwriters' Laboratories and Factory Mutual approved.

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the right extinguisher for every  
fire hazard... plus a complete  
line of brass goods and hose

Protection Association and the National Board of Underwriters will be found helpful for all phases of fire protection.

Employees should know how to operate extinguishers—to know the right extinguisher to use and how to use it. It also helps if the wrong kind of extinguisher is not too convenient to use on some special hazard. Employees gain experience and confidence practicing on demonstration fires in safe yard areas with extinguishers that are due for recharging.

Extinguishers need little maintenance but that maintenance is important. Inspect locations once a week to make sure that all apparatus is in place, in good condition and fully charged. A more detailed examination should be made once a year according to the manufacturer's directions.

Water is the extinguishing agent in three common types of extinguishers—soda acid, pump type and gas cartridge.

**The soda-acid extinguisher**, widely used for fires in ordinary combustible materials, is the most common of these. It contains a water solution of sodium bicarbonate and a bottle of concentrated sulfuric acid which mix when the extinguisher is inverted. The carbon dioxide gas thus produced expels the liquid. It gives a stream of good range and pressure which penetrates burning material and gets into cracks and corners. Although classed as a "chemical" extinguisher, it is water that puts out the fire.

Common size for hand use is 2½-gal. capacity. Wheeled units are also available in 20 and 40 gal. sizes.

**The gas cartridge extinguisher** uses plain water or an antifreeze solution which is expelled by pressure from a small cartridge of carbon dioxide gas released when the top of the cartridge is punctured. The commonly used size has 2½-gal. capacity. These units should be protected from freezing in heated cabinets unless antifreeze solutions can be used. Antifreeze solutions can be used only in an extinguisher whose case has been designed to resist corrosion.

The hand pump type is essentially a water pail with a hand-operated pump that discharges through a short length of hose. The operator pumps with one hand and directs the stream with the other. Two men can work more effectively, one pumping while the other directs the stream of water or anti-freeze solution. Range is 40 to 50 feet. Sizes available are 2½ and 5 gals.

Extinguishers of these three types should not be used on fires in electrical equipment or flammable liquids.

The foam extinguisher uses a mixture of sodium bicarbonate and a foam stabilizer dissolved in water in the outer cylinder and a solution of aluminum sulfate in the inner cylinder. When the extinguisher is inverted, the loose plug in the inner cylinder drops out, so that the solutions mix, producing carbon dioxide and foam.

Pressure from this chemical action expels the water and foam in bubbles which blanket the fire. The stabilizer toughens the bubbles, making the foam last longer and preventing escape of flammable vapors. Range is 30 to 40 feet.

Foam extinguishers are available in the 2½-gal. hand size and in 20 and 40-gal. wheeled units.

Foam is effective on fires in ordinary combustible materials and in flammable liquids. It should not be used on electrical equipment fires.

Carbon dioxide extinguishers afford valuable protection for special hazards, such as fires in electrical equipment and in flammable liquids. They are less effective on Class A fires than other types of extinguishers.

The extinguisher contains liquid carbon dioxide under pressure which, when released, turns into "snow." Fire is smothered by exclusion or displacement of air. There is also a temporary chilling effect which aids in prevention of immediate reignition.

Range is 3 to 8 feet, depending on the size of the extinguisher. The snow has limited penetrating power and is therefore not effective on deep-seated fires.

The snow is dry and nontoxic

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Now industrial firefighters, emergency crews and men who work in hazardous atmospheres can enjoy a new standard

of face mask comfort and vision. The new Scottoramic face mask with its "wrap around windshield" safety plastic lens gives the wearer an entirely new feeling of mask freedom.

It eliminates any feeling of claustrophobia or fatigue due to working with hampered vision.

Men work faster, more accurately and are comfortable for longer periods of time with the new Scottoramic full-vision face mask.

It may be worn over some types of glasses. Double-lip seal is positive assurance against smoke and toxic gases reaching the wearer. Non-fogging is assured by the circular air-washing action of the cool air.

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Export: Southern Oxygen Co., 15 West 57th Street, New York 19, New York

## Is your Watchclock



We are amused by the stiff elegance of the past—but there is nothing amusing about entrusting your plant's safety to an old-style dial-type watchclock.

Only the DETEX tape-recording GUARDSMAN watchclock gives your Watchman continuous supervision on week days, weekends, holidays and extended plant closings. Only the GUARDSMAN does away with the expensive overtime of sending a supervisor back to the plant on weekends to change the clock dial. (Allowing your Watchman to change the clock dial is against insurance regulations.)

PROTECT your plant against the high incidence of fires, burglaries and vandalism on weekends. Send coupon now for full details.

Detex Watchclock Corp.  
76 Varick Street  
New York 13, N. Y.

☐ Please send me complete information about the GUARDSMAN tape-recording watchclock.

☐ You may send a DETEX representative to make a free, no-obligation survey of our plant protection needs.

Name \_\_\_\_\_

Company \_\_\_\_\_

Address \_\_\_\_\_

Title \_\_\_\_\_

and a non-conductor of electricity. It will not harm fine machine parts and there is no clean-up problem.

Capacities of common sizes are: 2, 7½, 10, 15 and 20 lb. Wheeled units in larger sizes are available.

Fixed, local or flood type CO<sub>2</sub> systems are often installed for the protection of rooms which contain electrical equipment, flammable liquid or gas processes, dry-cleaning machinery and other exposures where fire cannot be extinguished by dilution of the oxygen content of the air or where electrical hazards prevent the use of water. Details on installation are given in the NFPA standard for carbon dioxide systems.

Dry chemical extinguishers, like the carbon dioxide type, are particularly useful for fighting fires in oil, grease, and solvents and around electrical equipment. The powder, a specially processed sodium bicarbonate, is non-toxic, non-corrosive and a non-conductor of electricity. It does not harm electrical or mechanical equipment, though the deposit of fine powder may create a cleaning problem.

Capacities of common sizes are 4, 5, 7½, 10, 15, 20, 25 and 30 lbs. Larger wheeled units are also available. Dry chemical systems, similar in principle to carbon dioxide systems, are also used for certain types of occupancy.

Range of portable extinguishers is 8 to 12 feet.

Vaporizing liquid extinguishers contain a specially processed charge of carbon tetrachloride, which is propelled either by a manually operated pump, as in the familiar 1-qt. size, or by stored gas or air pressure in the larger sizes. These extinguishers are particularly suitable for fires in electrical apparatus and for motor vehicle protection.

In operation a stream of carbon tetrachloride vaporizes and smothers the fire by diluting and excluding the oxygen needed to support combustion. It has some quenching effect but its principal action is due to its heavy blanket-ing vapor. It is compact and easy to maintain and is therefore used

## ANNOUNCING THE NEW

# FIRE KING

WITH AIR-PAK

by Wheeler

WHEELER  
FIRE KING  
No. 47814

Design patented  
and trademark  
registered



**\*Helps you avoid the most disastrous consequences of fire**

The new Wheeler FIRE KING! Far superior to any other rescue equipment, the FIRE KING utilizes light aluminumized asbestos for maximum heat reflection and mobility. The efficient Scott Air Pak breathing unit, provides cool air (not oxygen) on demand. The FIRE KING is ready for use in seconds... is easy to use... and fits all average size men (5'8" to 6'2"). Cylinder capacity provides for 15 minutes constant work inside the suit—at extreme exertion. Bullard hard hat built-in for added protection.

And the cost? Well within the budget of any fire services or institutions. Don't be without this valuable form of fire insurance for another day. Order from your jobber or write direct. DO IT NOW!

\*6,300 human lives lost through fire in 1954—countless horses and livestock—millions in property.

WHEELER PROTECTIVE APPAREL, INC.

226 West Huron Street  
Chicago 10, Illinois



# WHEELER

More Safety per Dollar

on mobile equipment where space is limited.

Carbon tetrachloride is highly volatile and toxic and at high temperatures decomposes to form poisonous by-products. The operator should avoid breathing the vapor and ventilate confined spaces after using the extinguisher.

It should be remembered however, that any form of combustion, regardless of the extinguisher used, may result in oxygen deficiency or toxic by-products.

The vaporizing extinguisher has a range of 20 to 30 feet. It is available in capacities up to 3 gal., with larger sizes in pump and stored pressure types. Sizes less than 1 qt. are not approved.

### What Is a Safety Can?

IS A SAFETY CAN used because it is an unbreakable metal container with a self-closing spout to prevent spillage? Or because its bright color indicates that it contains some highly flammable liquid?

These are important considerations but they do not include the main reason why a safety can is such an important piece of equipment wherever volatile flammable liquids are used.

What the casual observer doesn't see is the feature which makes the safety can really safe—the antflash screen. About 140 years ago Sir Humphrey Davy discovered that flame will not penetrate a fine mesh screen. This principle was incorporated in the miner's safety lamp which bore his name. It is employed in various types of flame arresters in use today.

One of the functions of the flame arrester is to prevent propagation of fire by absorbing and dissipating the heat of fire before reaching the flammable material. It also serves to reduce entrance of a sufficient volume of air below the point where it will support combustion.

Safety cans containing this important feature are available in sizes from 1 qt. to 5 gal. For storage in larger quantities drums can also be fitted with bungs and faucets equipped with flame arresters.

Automatic closing covers exclude air from the container, thereby preventing spread of fire should ignition occur within it. These covers may be closed by gravity, by spring action, or by a combination of gravity, spring action and fusible links.

Venting provisions are needed for all closed-type containers used for flammable liquids. Pressure from expanding vapors may be created rapidly from excessive summer heat or that generated by nearby artificial heat sources. If pressure relief is not provided,

the expanding force may burst the container, cause ignition of vapors and spray fire over the surrounding area.

With portable containers, the automatic spring-operated cap used to seal the container also serves as a relief vent for pressure built up inside. This pressure causes the cap to rise just enough to provide relief and then the cap closes again.

Another device used for this purpose is the drum bung fitting, operation of which is similar to the spring closure cap.



## A 'MUST' FOR EVERY LOADING RACK

the Gilbarco Electronic Indicating Ground



For positive protection against static electricity, no loading rack should be without the Gilbarco Electronic Indicating Ground. It provides a safe ground plus sure indication that the ground connection is completed and operative.

It is low cost insurance against the hazard of static electricity at Bulk Plants, Chemical Terminals, Tank Farms, Marine Terminals — wherever there is loading and unloading of volatile liquids.

**It's safe** — eliminates the ever present source of danger at all loading racks — faulty grounds which lead to fire.

**It's simple** — when proper ground is established Indicator gives "go ahead" by means of light or audible signal.

**It's positive** — here is the one way to be sure that some wiring defect, paint, rust or carelessness is not causing a faulty ground.

WRITE NOW FOR FULL DETAILS—learn how little it costs to have this POSITIVE protection and safety for your loading racks. It is low-cost insurance.

*Gilbarco*  
Gilbert & Barker  
Manufacturing Co.  
West Springfield, Mass.  
Toronto, Canada





### Safe-T-meter®

2½ GAL. WATER EXTINGUISHER  
(stainless steel or brass)

The companion pressurized extinguisher for Class A hazards.

Any one KNOWS this unit will operate, just by looking at the gauge!

For service, all you need is water from the tap and air from the gas station compressor.



PRODUCTS CORP.  
Elmsford, New York

### Controlling Those Static Imps

WHENEVER there is friction between small particles or contact and separation of two unlike substances, both of which are non-conductive, static charges may result. These charges may be merely an annoyance or they may be a serious menace.

Sparks resulting from accumulations of static electricity are a common cause of ignition in accidental fires. The sparks may ignite flammable vapors, gases and dusts.

The flow of gasoline and other flammable liquids through hoses and the flow of dust-laden air or other gases through non-conductive passages may produce static charges which build up a sufficient potential to result in a spark.

**Neutralizers.** Accumulation of static charges can be dissipated by ionization of air near the point where the accumulation occurs. Three types of neutralizers are used for this purpose:

1. High voltage
2. Radioactive
3. Induction

All three types of neutralizers are generally effective ionizers but considerations of safety and operating conditions may decide the type of installation.

The high-voltage type requires auxiliary equipment and certain restrictions in its applications, particularly where flammable vapors or gases may be present.

The radioactive neutralizer imposes no fire or explosion hazards but in many states installations must be approved by health officials.

Induction neutralizers require no external power source and operate on the principle of electrostatic induction. The static charge itself is employed as the neutralizing agent. No restrictions are imposed on installation.

Gas flame or infra red heating devices used for ionization of the air are not suitable in the presence of flammable vapors, gases or dusts.

**Grounding.** Static electricity is generated on dry belts, particularly rubber and leather, by contact and separation of belt and



### should never have happened!

A pile of oily waste, rags or other flammable refuse is just a fire looking for a chance to happen...unless it's enclosed in a WITT Oily-Waste Can.

These Factory Mutual and Underwriters Laboratories approved Cans have all the strength, durability and economy of the famous WITT CANS plus tripod feet and hinged lid (hand or foot operated). Under normal useage WITT Oily-Waste Cans will last for years and years.

Make WITT Oily-Waste Cans standard equipment in your plant as they are in thousands of leading plants nation wide. Call your Industrial Distributor.

### OILY WASTE CANS

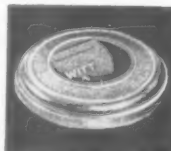
Made in 7 sizes, with hand and foot operated covers. 5 to 30½ gal. capacity.

3 sizes: 5, 6-3/5 and 8¼ gals. have Corrugated bodies.

4 sizes: 12, 14¾, 22 and 30½ gals. have Plain bodies.



### New PUSH-TOP LID



Eliminates hazards of open top container yet allows handy disposal. Converts No. 1, 2 and 3 WITT Cans to self-closing refuse receptacles or those Cans having 16", 18¼" or 20½" outside diameters.

Write for Catalog and name of nearest distributor.

**WITT Cans**  
"Originators of the Corrugated Can"

THE WITT CORNICE COMPANY

2148 Winchell Ave., Cincinnati 14, Ohio

Civil Defense official  
praises life-saving

*Pocketaire*

# BREATHING APPARATUS



John W. Cummings 2nd  
Technical Advisor, Fall River Civil Defense  
Fall River, Mass., says:

"Your masks have made possible seven rescues and a number of reconnaissance and ventilation tasks in heavy smoke and sulphur dioxide. Lawyers, judges and juries seem to value a life at \$7500. Seven lives at \$7500, \$52,500, a handsome return on the price of two masks.

Fall River Civil Defense bought three masks in 1954 and six in 1955. These masks are in service in the Fire Department. It intends to purchase a substantial number more.

It has been interesting to note that in smoky fires, when unprotected men have been knocked out or reduced to copious tears, men wearing "Pocketaire", without goggles, have experienced little or no lachrymation and no after effects."

Seconds count when human life is at stake, and Pocketaire is on the man and in action in only seven seconds. A compact, lightweight unit, it is unequalled for speed of operation and complete breathing protection. Its high standards bring together the essentials of a practical, self-contained breathing apparatus—light weight, small size, low cost (from \$100 up) and inexpensive refills.

Write for free literature  
or demonstration

## THE CYCLE-FLO COMPANY

987 BRIDGEPORT AVENUE • MILFORD, CONN.  
Canada:  
Wilson & Cousins Co., Toronto, Ontario  
Export:  
Ward LaFrance International, Elmira, N. Y.

pulley. Excessive accumulation of static charges can be avoided by use of conductive belting. Also, belts can be grounded by adjacent sharp-pointed metallic combs, or metallic tinsel static collectors.

Static collectors should not touch the belt but should be located close to it so that there will be no hot sparks to ignite flammable vapors. Combs are not recommended in explosive atmospheres. Chain drives or conductive rubber belts should be used. Conductive belt dressings are helpful but must be renewed frequently.

Shafting and metal pulleys should be grounded with carbon, brass or spring brushes and contacts.

**Humidity control** is employed extensively in paper mills, printing, rubber and textile plants where non-conducting material is processed and static charges produced excessively. If humidity is maintained at or above 60 per cent at 70 F., static charges will be less likely to accumulate to a dangerous degree.

High humidity is obtained by special humidifiers or by wet steam jets installed on blower type heaters.

## Plant Protection Organization

Not the least important of fire's enemies are people—the men who keep watch over the plant while others sleep and the alert, trained employees who are ready to man the fire-fighting apparatus when the alarm sounds.

**Good watch service** is indispensable to the safety of industrial property. Trained watchmen have the ability to:

- Discover hazards and correct or report them.
- Discover outbreak of fire or water damage in early stages.
- Extinguish small fires before they cause much damage.
- Call help promptly when needed.

Using good judgment in calling for help in an emergency instead of trying to handle the situation alone is an important qualification. Many a fire has gotten beyond control because of a delay in sending in an alarm.



## Safe-T-meter

25 LB. DRY CHEMICAL EXTINGUISHER  
(one of eight models)

We have the old type, too, where the cylinder has to be weighed—but a glance at the gauge tells the story with Safe-T-meter.

Service yourself or consult your telephone directory—over 1500 service points in the U.S. alone.



PRODUCTS CORP.  
Elmsford, New York

Good watch service depends on the type of man employed, the instruction he receives, and his understanding of his duties. A good watchman is a mature, able-bodied person who is loyal, dependable and not likely to become rattled in an emergency. It is not a job for a pensioner whose physical endurance does not match his loyalty.

Watchmen should be familiar with all parts of the plant's protective system — sprinkler systems, valves, drains and fire pumps. He should know how to operate portable extinguishers and understand the working of special extinguishing systems.

Specific instruction should be given for any type of emergency likely to occur. This should be done when the watchman starts on the job and repeated at intervals.

Recorded hourly rounds for watchmen are recommended for most plants. Routes should be laid out so that all parts of the property are covered.

Watch-clock or supervisory

systems give a complete record of watchmen visiting each station and failure to clock in at the regular time brings an investigation. This supervision has frequently brought help to a watchman disabled by accident, sudden illness or intruders, and prevented loss of life and property.

Trained employees bring many a blaze under control quickly with a minimum of damage or interruption to production.

Such employees, trained in handling the type fires likely to occur in the plant, have many times repaid the time spent in their training and the cost of the equipment.

Municipal fire departments are dependable and skilled, but they cannot get there during the vital first few minutes. Sometimes there is a delay in transmitting alarms. Storms or heavy traffic may delay their arrival. And local disasters may leave the plant on its own resources. And on the other hand, well-manned and well-equipped plant forces have been able to render valuable aid to the community in times of

flood, storm and conflagration.

**Fire squads.** The first step for any plant, large or small, is to organize fire squads of five or six employees in each department. These men may serve as fire inspectors, looking for and reporting conditions which start fires. They should learn to use extinguishers and understand the functioning of automatic sprinklers.

**Fire Brigades.** The plant which has its own hydrant and hose systems needs trained men to get them into action quickly when needed. Some or all fire squad men can be members of the larger fire department.

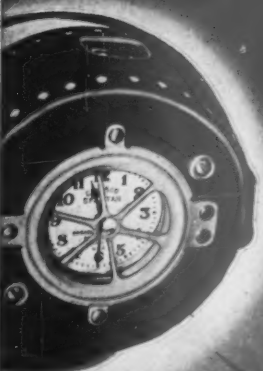
Brigade members should be familiar with all details of the plant, its protective system and its water supplies.

They should be well drilled in handling hose streams—which is no job for an amateur.

The organization should be planned so that each man will have a definite task. Some should be assigned to salvage and protecting goods and machines from water damage.

**HERE'S  
PROTECTION**

against  
**FIRE  
THEFT  
SABOTAGE**



## CHICAGO Watchclock System

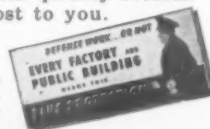
*"The first . . . and still the first."*  
LOWERS YOUR INSURANCE RATES!



It keeps track of your watchman's tracks—so accurately and positively that the CHICAGO WATCHCLOCK System is approved by THE UNDERWRITERS' LABORATORIES and by THE FACTORY MUTUALS LABORATORIES. Users earn reduced insurance rates. Thus the CHICAGO WATCHCLOCK System quickly returns its small cost to you.

**Write for FREE**

new folder that completely describes this simple, low-cost, tamper-proof system of extra protection to property. Write for it NOW!



**CHICAGO WATCHCLOCK**

DIV. GREAT LAKES INDUSTRIES, INC.

1524 S. WABASH AVE., CHICAGO 5, ILL.

OFFICES IN PRINCIPAL CITIES

## Inspect and Protect

—From page 42

realize that this is for their own safety as well as the protection of their jobs, they will cooperate with the inspector.

Welders, who are probably the chief users of portable open flames, should be reminded that they themselves will probably be the first to be destroyed by the flames if necessary precautions are ignored. Not all jobs require permits but those that do can be designated on the original maintenance work order.

Fire prevention and fire protection are equally important in the inspection of operations and maintenance work. Fire protective devices installed when the plant was built or new processes added are of value only when in operating condition. To make certain that they are, an adequate inspection program is needed.

An inspection check list is essential. Too often a person charged with inspecting fire protection equipment feels that he has an adequate mental list and that he knows the location of every piece of equipment. Experience has shown that without a paper list he will eventually miss one or two items.

The inspection report should include a list of main and divisional valves, sprinkler control points, hose houses, special extinguishing systems, and all other equipment connected with fire-fighting operations. No less important than the list is having inspections on a regular schedule.

Extremely hazardous conditions observed during an inspection tour should be reported immediately by phone, then confirmed in writing when the inspection has been completed.

In multi-plant operations, a summary of the regular inspections should be prepared monthly and sent to company headquarters for review.

All fires, no matter how small, should be followed by a complete investigation and thorough inspection. A fire represents a failure of one of the important elements—men, material or machines. It also represents a fail-

## POSITIVE PROOF of PRACTICAL SAFETY



Type 2 Safety Cans (Above) minimize risks in pouring, permit faster filling of portable power units, etc. Labeled Underwriters' Laboratories and Factory Mutuals.



Justrite Plunger Cans for safe dispensing of flammables for cleaning, sponging, etc., are available in 3 sizes. FM approved.



Type 1 Safety Cans available in 7 sizes (one pint to 5 gallons) store safely, pour easily. FM approved, U.L. labeled. Type 1 Cans are also available hot tin dipped or in stainless steel.

### FOR OILY WASTE AND RAGS

Justrite Oily Waste Cans are built to stand punishment. U.L. labeled. FM approved. In 5 sizes, 6 gal. to 40 gal. capacity.

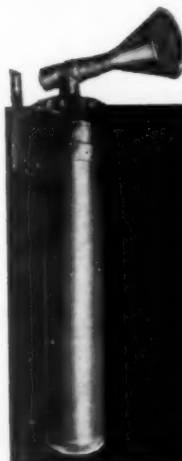
ASK YOUR REGULAR DISTRIBUTOR OR WRITE FOR CATALOG  
JUSTRITE MANUFACTURING CO. CHICAGO 14, ILLINOIS

## Sounds for Safety

engineered by **FALCON**®



**FALCON  
AUTOMATIC  
FIRE  
DETECTORS  
FOR HOME,  
FACTORY,  
INSTITUTIONS  
OR ANY OTHER  
INSTALLATIONS**



**New Falcon Automatic Fire Detectors and Alarms** provide constant protection wherever fire is a hazard. Self-powered by DuPont "Freon", they give early warning at first sign of fire. U. L. Approved for 20 Ft. Spacing —Low Cost—Non Electric—Easy Maintenance—Easily Installed—30 Yr. Guarantee.

**Falcon manually operated Emergency Signaling Horns** are portable, self-contained and "Freon" powered. Many types and sizes. Special designs for special uses. Write for details—

**FALCON ALARM CO. INC.**  
243 BROAD STREET  
SUMMIT, NEW JERSEY

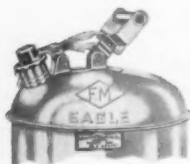
SEVERAL SALES TERRITORIES NOW OPEN



## Why INDUSTRY IS BUYING THE NEW EAGLE Safety Cans



**the approved SAFE way  
to handle flammable liquids**



1 qt., 2 qt., 1 gal.  
Safety Cans come  
with trigger-grip  
handle, as illustrated  
at top right. 2½ and  
5 gal. sizes feature  
free-swing handle  
(above)

- A complete new line with a good old name
- Listed by Underwriters Laboratories
- Approved by Factory Mutual
- Available in 5 sizes from 1 qt. to 5 gal.
- No waste, no splash, no spill
- Strong 1-piece construction — no seams
- Self-adjusting guard cap prevents leakage
- Safe for handling all flammable liquids

Order from your supplier or write for information.  
The new Eagle 1955 catalog showing the Complete  
Line is now available free.  
Eagle products are also available in Canada.



**MANUFACTURING COMPANY**  
Wellsburg, W.Va.

Serving Industry Since 1894

## PREVENT FIRES OR EXPLOSIONS

due to static spark discharges

**INSTALL**

amazingly effective

yet inexpensive

revolutionary new type

**STATIC ELIMINATOR**

THE NEW

**"MAGIC WAND" PAT.**

SELF-ENERGIZING

INDUCTION TYPE

**STATIC NEUTRALIZER BAR**

**SAFE IN ANY HAZARDOUS LOCATION**

This neutralizer uses static generated on machines as the neutralizing agent.

No expensive high voltage bars, cables or transformers needed . . . No health hazards . . . Simple, amazingly effective . . . Inexpensive, no maintenance . . . No spark hazards, SAFE, does not shock operators nor damage stock. The higher the charge, the faster the processing speed, the better this neutralizer works.

**MANY SATISFIED USERS. INITIAL  
LOW COST REPAID IN INCREDIBLY  
SHORT TIME IN EFFECTIVE RESULTS**

**HERMAN H. STICHT CO., INC.**

WRITE FOR  
BULLETIN NO. 126

27 PARK PLACE,  
NEW YORK 7, N. Y.



ure somewhere in the inspection system. A complete investigation and report may prevent a recurrence.

No inspection procedure is any better than the man who carries it out. The best protective equipment can be installed, a comprehensive inspection program can be developed and complete checklists prepared, but fire safety depends upon capable and conscientious men. An inspector must be an instructor as well as an investigator. In addition to ability and integrity, he needs imagination and a persistent curiosity.

## Stresses Peril of Leaks In Underground Tanks

AT LEAST 10 per cent of all underground gasoline and other petroleum storage tanks are leaking and fumes are entering sewers and buildings "causing explosions and loss of life and property," according to Ohio State Fire Marshal Charles R. Scott.

Stressing the peril, Scott told the Fire Marshals' Section of the National Fire Protection Association meeting here in Boston that vapor from one gallon of gasoline mixed in certain proportions with air has "the same explosive power as 87 sticks of dynamite."

Enforcement officials must undertake the elimination of these hazards, he said, asserting that owners and others using such underground storage frequently avoid their responsibility to stop leaks.

Scott declared the existing air-pressure tests for such underground tanks is often worse than useless. Compacted clay and earth around a tank may actually make it difficult to get any sound evidence of leakage with this method. And he said the pressure might actually increase holes in corroded or defective equipment.

He expressed the opinion that the only dependable method is a gravity test in which the tank is filled with fuel and then, with a reading device, actual leakage of fluid by gravity is disclosed.

"If the liquid level declines in the supply piping, there is only one answer," Scott said: "It is

leaking and there is only one way to find it—dig, dig and keep digging until it is found." He said 90 per cent of leaks probably would be found in piping.

"Of all underground tanks now in service, I feel confident that at least 10 per cent are leaking," he added.

Studies indicate two causes, he said: corrosion due to soil or similar chemical conditions, and leakage caused by human failure to install or maintain tanks and piping properly.

But, he declared, "the second and the larger human failure" is "the failure of responsible people to face up to the problem where a leak or spill has caused loss of life or property damage."

"I have never seen such evasive people, when it comes to getting facts," Scott said.

"They will tell you time and again that they have NO leaks or loss of product, only to sheepishly admit, when confronted with the facts, they were losing 10 gallons a day but didn't think that small amount could make any difference."

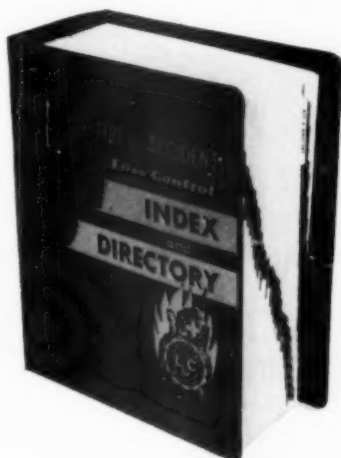
Scott declared "any unaccounted-for loss from any tank or pipes is important . . . knowing that this leakage is going on every day, and knowing from our investigations it is getting into sewers and buildings and causing explosions and loss of life and property, it behooves us in the enforcement field, to do something positive about finding the source of these leaks and eliminating them."



"Why stop ME—do I look like a crook?"

# Know Where to Find ANY Information Desired on All Phases of **ACCIDENT PREVENTION and FIRE CONTROL!**

**AS NEW AS THE ATOMIC AGE!**



## **ONLY SERVICE OF ITS KIND!**

Here's a NEW Information Service consisting of a Fire and Accident Loss Control "Index & Directory" of more than 50,000 references which will enable you to quickly and easily locate the source of virtually ANY information desired on ALL phases of Accident Prevention and Fire Control.

# \$48<sup>50</sup>

*Now Available* **ON A 10-DAY  
FREE EXAMINATION BASIS!**

SEND COUPON BELOW OR REQUEST A COPY ON  
YOUR FIRM'S LETTERHEAD!

**LOSS CONTROL ASSOCIATES**  
629 Oakmont Drive, Plattsmouth, Nebr.  
Gentlemen:

Enter my order for \_\_\_\_\_ subscriptions to the "Fire & Accident Control Information Service" on a **10-DAY FREE EXAMINATION BASIS**. If I am not satisfied with the book I may return it in 10 days without obligation. I understand I am to receive supplements semi-annually and be billed at the rate of \$17.50 per year.

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**Loss Control Associates**

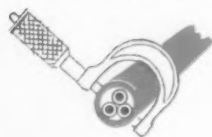
629 OAKMONT DRIVE • PLATTSMOUTH, NEBRASKA



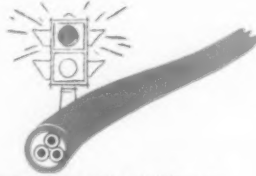
*injects color in portable  
cord to minimize accidents  
... cut maintenance costs!*

\*Mill  
Duty

Indoors or outdoors...Type MD\* RED-D-PRENE carries current wherever you want it, *safely* and at *lower* cost. First designed with tough, oil-resistant Neoprene sheath in Industrial Red...easily seen and recognized by maintenance men. RED-D-PRENE assures long wear, reduces maintenance costs. Means positive identification in your stockroom. Ideal for heavy duty use in Mill and Plant installations.



No flat sides, no off center conditions!  
Maximum flexibility, moisture resistant.



Industrial Red for high visibility; Insures positive RED-D identification!

*Write today for new descriptive brochure and samples.*



**DIAMOND WIRE & CABLE CO.**

SYCAMORE, ILLINOIS

## Voice of the Reader

Let's have your views on current topics. You don't have to agree with us

### Power Mowers

HOUSTON, TEX. Your item concerning power mowers (page 133, May 1956) prompts me to recount an incident which might bear repeating for the benefit of your readers.

Approximately eight or nine months ago, our laboratory was engaged in a high-priority, ultra-important research and design project. As the job was set up, each man had his own part to play, and there was little, if any, overlap of duties.

One technician put in a 10-hour Saturday and a 10-hour Sunday, then went home to take care of an equally important home project—repair of his rotary-type power mower. Repairs and adjustments completed, he placed the mower on a smooth driveway surface and attempted to start it with a pull on the starter cord.

Despite a pull that made the blades spin vigorously, the motor did not start. However, he failed to chock the mower wheels or to block his foot against the guard housing. The mower rolled back, over his foot, and the turning blade severed all tendons at the front of his ankle.

Result: seven hours of surgery; seven days off the job at a critical time; one toe permanently disabled despite top-flight medical care; one sadder and wiser technician.

WILLIAM H. NEWTON

### New Research Buildings For Cement Association

TWO NEW laboratory buildings will be constructed at the Research and Development Laboratories of the Portland Cement Association, according to G. Donald Kennedy, president of the Association in Skokie, Ill. Estimated to cost \$1.8 million with equipment, the buildings will provide

for the Association's expanded research program on concrete structures and the fire resistance of concrete. Completion is scheduled for 1957.

Precast structural members will be used for the main portions of both buildings. Frames will be of conventional reinforced concrete, but the beams will utilize high-strength steel reinforcing bars. The beams were designed by the ultimate strength method using 60,000 psi. for ultimate steel stress. Wall panels will be of tilt-up construction with decorative designs cast in the concrete. Roofs will be of precast concrete units.

The new laboratories will be devoted to supplying through the Association's field engineering organization to designers and builders the research and development information necessary to continued progress.

The Fire Research Center will be organized under the Research Department, of which Hubert Woods is director. The Structural Development Laboratory will be under the Development Department, Douglas McHenry, director.

The Structural Development Laboratory has been described as "one giant testing machine." Conventional testing machines will not be used in the building. Instead, testing equipment will be constructed as required from large elements of structural steel shapes, and hydraulic jacks. Holes on three-ft. centers through the reinforced concrete floor will allow testing equipment to be bolted down.

The required strength and rigidity of the testing floor will be developed through a type of construction involving box girder action in the longitudinal direction and truss action in the transverse direction.

The Fire Research Center will ultimately contain six furnaces large enough to handle tests on full-scale beams, columns, walls and floor slabs.

Both buildings will have overhead cranes that will travel the full length of the main testing areas. An unusual feature of the Fire Research Center will be a large movable partition which will separate the air conditioned casting and storage area from the



# ACCO Registered<sup>\*</sup> Sling Chains



**NEW!**



**Accoloy X-Weld  
125 Chain**

Welds as strong  
or stronger than  
alloy material.  
Welded area  
2 1/4 times conventional  
size area.

**NEW!**



**Shaped Section  
Master Link**

Holds its form  
under loads up  
to 18% greater.

\* Trade Mark Registered

## NOW—Better and Safer than Ever!

• ACCO Registered Chain Slings—long recognized as the standard of excellence—now give users a double bonus of safety and quality. They incorporate ACCO's new Shaped Section Master Link plus ACCO's sensational Accoloy X-Weld 125 chain.

The new Shaped Section Master Link, without any increase in weight, withstands deformation under loads up to 18% greater than a standard round section can. And the Accoloy X-Weld 125 chain—with its extra-strong, king-size welded area and its non-kinking feature—assures extra ruggedness and better service.

Because of these two spectacular improvements, there is more reason than ever for standardizing on ACCO Registered Slings. For additional interesting information, call your ACCO Registered Distributor—or write our nearest District Office.

### WHAT "ACCO REGISTERED" MEANS...

- 1 The best material
- 2 Unit safety factor (on bodies, rings, links, hooks)
- 3 Proof test of complete sling to twice the working load limit
- 4 Actual field service test of each design
- 5 Metal identification ring on each sling
- 6 Signed Registry Certificate with each sling



**ACCO**

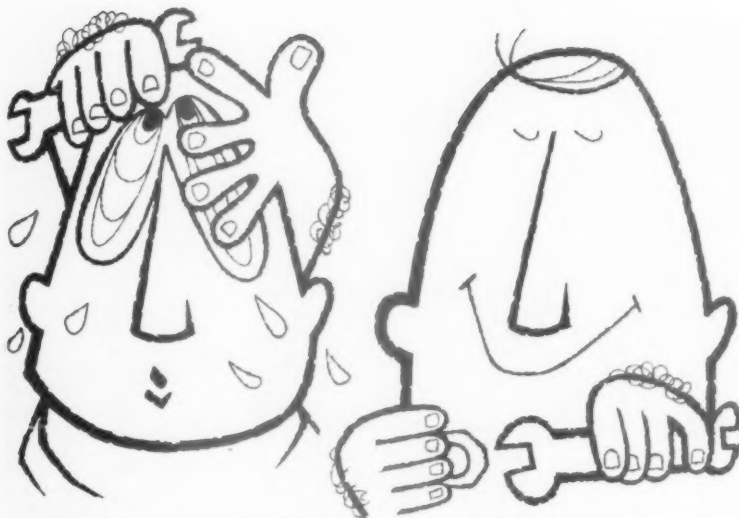


**American Chain Division  
AMERICAN CHAIN & CABLE**

York, Pa., Atlanta, Boston, Chicago, Denver, Detroit, Houston,  
Los Angeles, New York, Philadelphia, Pittsburgh,  
Portland, Ore., San Francisco, Bridgeport, Conn.







*Collins never took salt tablets—  
He said they made him sick!*

*But look at Collins now—  
Morton "Yellows" did the trick!*

# Take salt tablets without feeling ill



Complies with Federal  
Specifications SS-5-31e for  
Type III, Class C Impregnated  
Salt Tablets  
U. S. Patent No. 2,665,236  
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You and your employees will like Morton Yellow Impregnated Salt Tablets. These are non-sickening salt tablets made by a special patented process that uniformly coats the individual salt crystals to control the dissolving rate of the tablet. A controlled dissolving rate means that salt lost through sweating is replaced gradually—but beginning immediately.

Salt lost through perspiration should be replaced to prevent Heat Fatigue. Workers will feel better and work better when they take Morton Yellow Impregnated Salt Tablets—and remember, they do not cause stomach upset.

Morton Yellow Impregnated Salt Tablets come in a handy Disposable Dispenser. A plastic dispenser and a new golden heavy duty dispenser are also available, as are plain salt tablets.

Mail coupon today for more information!

## MORTON SALT COMPANY

Dept. NS-7, 120 South LaSalle Street, Chicago 3, Illinois

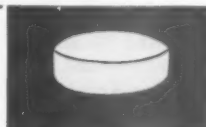
Please send me your booklet which gives complete information about the Morton line of salt tablets and dispensers.

Name

Company

Street

City  Zone  State



furnace room. It will be so constructed that it can be opened to allow passage of the crane when specimens are to be moved from the storage area to the furnaces.

Initial emphasis in the Fire Research Center will be placed on determining the fire resistance of prestressed concrete, since more information on it is needed for current applications. Other factors to be included in early studies are strength and type of concrete, method of curing, thickness and shape of section, type and amount of reinforcement, bonding of prestressed reinforcement, thickness of cover and surface preparation.

## Postman's Job Is for the Dogs

WHAT DO YOU DO when 5,880 of your employees get nipped by dogs in one year? That's the problem facing Postmaster General Arthur E. Summerfield, who recently reported on some of the suggestions he's received for protecting mail carriers:

1. Wire mesh leggings (too cumbersome).
2. Mastiffs for mailmen in neighborhoods plagued by vicious dogs (too expensive).
3. Water pistols with a mild ammonia solution (dogs don't mind, but owners do).
4. Psychology—look the dog in the eye and refuse to back down (rejected by postmen who say that, in a pinch, there's no time to catch the dog's eye).

Last year's casualties were bitten mostly on the arms and legs, but a painful three per cent suffered bites in what the department delicately referred to as "elsewhere." Some 4,400 had to stop work for first aid and more than 500 victims were off the job one day or more.

While he looks for a foolproof chemical to repel canines or a tough synthetic uniform material the Postmaster General says the department will try "patron education," through letters to dog owners asking them to keep their pets leashed or confined during normal mail delivery hours.

Give me a man that is capable of a devotion to anything, rather than a cold, calculating average of all the virtues.—Bret Harte

## Germ May Lurk on Greasy Table Tops

RESTAURANTS and institutions which scrupulously maintain sanitary standards in the kitchen may still overlook a source of food contamination on the surfaces of tables and counters, according to a recent survey made by Richard D. O'Neill and Ernest Reed of the Department of Plant Sciences of Syracuse University. This survey was undertaken with the cooperation of the Commissioner of Health and the Bureau of Food and Sanitation of Syracuse, N. Y., with grants from the paper place mat and doily industries.

Dr. Ida Bailey Allen, a leading syndicated food columnist and radio and TV food commentator, announced the study's findings in an address at a convention of the Association of Food and Drug Officials on May 10. Dr. Allen told the officials celebrating the 50th anniversary of the Pure Food and Drugs Act: "... many women are criticizing what they call a sloppy method of wiping off the

surfaces of tables and counters with a cloth or sponge that is obviously not clean. They resent having the knife, fork and spoon laid on these surfaces; they do not understand why these eating utensils cannot be protected at least by the use of a clean paper place mat or doily. And according to a survey conducted by Syracuse University, these women have reason for complaint."

Doctors O'Neill and Reed took samples by means of swabs from the surfaces of tables and counters in 10 different types of eating establishments: hotel cafeteria, luncheonette, sea food restaurant, diner, a bar and grill, public cafeteria, drugstore fountain, variety store fountain, short order house, and a restaurant catering to the college trade. Surface materials were wood, glass, plastic and linoleum. Cleaning methods varied from soap and water to chlorinated cleaners.

In the 10 eating places tested, using seven different kinds of cleaning techniques on five different kinds of table or counter tops,

bacterial counts ran as high as 800,000 per sq. ft. In some cases the bacteria present were of the coliform group which may include serious disease-producing organisms.

The survey revealed that bacteria counts on uncovered service surfaces ranged from zero to 800,000 per sq. ft. Doctors O'Neill and Reed pointed out that for this reason no operator can be sure of his cleaning method. They commented: "These extremes were frequently found in samples from the same restaurant taken on the same day. It becomes apparent that the occurrence of contaminants is a highly unpredictable and to some extent fortuitous thing. The restaurant patron may be served on an essentially sterile surface or a highly contaminated one, depending somewhat upon his choice of restaurants but also depending upon the day he may visit a given restaurant and upon the serving surface."

The only sure thing about luck is that it will change.—Bret Harte

## NEW HOOD "Grip-all"

## GLOVE

... gives workmen

a safer, surer grip!



Hood's new "Grip-all" glove is designed for workmen handling sharp, slippery objects such as plate glass, sheet metal, etc. It has an impregnated extra-coarse rubber dust surface that is super-resistant to slipping. It is also completely flexible — allows free finger movement, enabling workmen to grip hard and fast.

The "Grip-all" is also heavy-weight, long-wearing and protective. Its tough surface prevents hand scratches and cuts from sharp edges and corners. Rigorously tested in glassmaking plants, the Hood "Grip-all" is available in five different styles. They include palm- and fully-coated styles with knit wrists and 2" and 4" safety cuffs.

**HOOD RUBBER CO., Watertown, Mass.**

a division of the B. F. Goodrich Company



Write today for free Hood Glove Guide — shows you how to choose the RIGHT glove for EACH job.

RUBBER • NEOPRENE • PLASTIC COATED INDUSTRIAL GLOVES

# FOR DISTINGUISHED SERVICE



**National Safety Council**  
awards for outstanding records

**THREE TYPES** of awards are given by the National Safety Council to industrial units in recognition of outstanding performance in accident prevention:

**1. THE AWARD OF HONOR** is available to units whose records, though not perfect, meet rigorous standards of excellence. These standards take into account the previous experience of the unit as well as the experience of the industry in which it operates. A unit must qualify on both frequency rate and severity rate. The Award of Honor is available also to units which complete 3,000,000 man-hours without a disabling injury.

**2. THE AWARD OF MERIT** has similar, but less exacting requirements. Minimum number of injury-free man-hours needed to qualify is 1,000,000.

**3. THE CERTIFICATE OF COMMENDATION** is available only for injury-free records covering a period of one or more full calendar years and totaling 200,000 to 1,000,000 man-hours.

Details of eligibility requirements may be obtained by writing to the Statistics Division, National Safety Council.

## AWARDS OF HONOR

**Allied Chemical & Dye Corp.**, General Chemical Div., N. Claymont (Del.) Works.

**Celanese Corp. of America**, Chemical Plant, Bishop, Texas.

**Chrysler Corp.**, Tank Plant, Detroit.

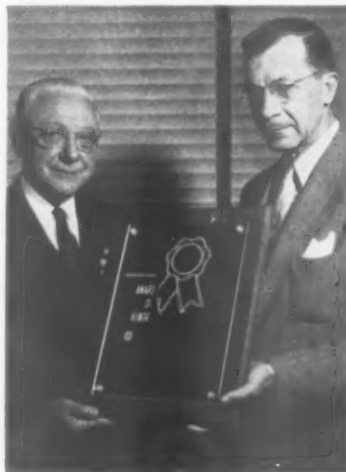
**Ford Motor Co.**, Three Awards: Dearborn Stamping Plant; Kansas City Assembly Plant; Ypsilanti Plant.

**General Electric Co.**, Evendale (Ohio) Operating Dept.

**Radio Corp. of America**, Moorestown (N. J.) Engineering Plant.

way System, Three Awards: Car Shops, Hudson, Wis.; Locomotive Shops, St. Paul, Minn.; Special Agents Dept.

**Chrysler Corp.**, Jet Aircraft Div., Detroit.



**FOR THE FIFTH** time in six years the Davison Chemical Company Division of W. R. Grace & Company has been awarded the National Safety Council's Award of Honor. Marlin G. Geiger (left), Davison's president, accepts the plaque from D. C. Lee, president of the Baltimore Safety Council and manager of industrial relations, Baltimore Division, Westinghouse Electric Corp.

## AWARDS OF MERIT

**Alan Wood Steel Co.**, Steel Works, Ivy Rock, Pa.

**Allen-Bradley Co.**, Milwaukee Plant.

**Aluminum Co. of America**, Buffalo Works.

**American Can Co.**, Cincinnati Machine Shop.

**American Enka Corp.**, Lowland (Tenn.) Plant.

**American Bosch Arma Corp.**, Arma Div., Garden City, N. Y.

**Brea Chemical, Inc.**, Brea, Calif.

**Celanese Corp. of America**, Two Awards: Amcello Plant, Cumberland, Md.; Celanese Mexicana, S.A.

**Central Maine Power Co.**, Central Div., Augusta.

**Chicago and North Western Rail-**

**Ford Motor Co.**, Seven Awards: Central Parts Depot; Cleveland Engine Plant No. 2; Cleveland Stamping Plant; Fargo Parts Depot; Manufacturing Services Div.; Open Hearth and Electric Furnace; San Jose Assembly Plant.

**General Electric Co.**, Two Awards: Large Motor & Generator Dept.; Small Integral Motor Dept.

**Gulf States Utilities Co.**, Entire Company, Beaumont, Texas.

**International Milling Co.**, Two Awards: New Prague; Salina Mill, Minneapolis.

**Jersey Central Power & Light Co.**, Entire Company.

**Kansas Gas & Electric Co.**, Entire Company.

**Longview Fibre Co.**, Longview, Wash.

**Reynolds Metals Co.**, Phoenix Extrusion Plant, Phoenix, Ariz.

**Royal Typewriter Co.**, Hartford, Conn.

**University of Akron Government Laboratories**, Ohio.

**Warner Gear Corp.**, Dept. N 26 located at Plant No. 3, Muncie, Ind.

**Western Electric Co.**, Four Awards: Chicago Area of Telephone & Installation Div.; New York Distributing House; San Francisco Area of Telephone & Installation Div.; St. Louis Area of Telephone & Installation Div.; Atomic Power Div., Bettles Plants.

**West Point Manufacturing Co.**, Fairfax Mill Div., West Point, Ga.

## CERTIFICATES OF COMMENDATION

**Celanese Corp. of America**, Celanese Mexicana, S.A.

**Chicago and North Western Railway System**, Locomotive Shops, Chicago.

**Ford Motor Co.**, Standard Transmission & Radiator Plant, Dearborn, Mich.

**Port of New York Authority**, Two Awards: George Washington Bridge, Fort Lee, N. J.; Newark Airport, Newark.



Dow . . . industry's most complete line of chlorinated solvents



## *safety plus and solvent power, get both in* **CHLOROTHENE**

**Powerful cold degreasing solvent has low toxicity, low fire hazard; gives maximum safety for spray, bucket, dip, wipe cleaning.**

Just look at this *toxicity* story. CHLOROTHENE† (Dow 1,1,1-Trichloroethane, Inhibited) carries an M.A.C. figure of 500 ppm. . . . 20 times greater than carbon tetrachloride's rating, 2½ times that of trichloroethylene! CHLOROTHENE presents *no* problem from absorption through the skin. Its topical effect is similar to that of other good organic solvents.

How about *fire*? CHLOROTHENE has *no* flash or fire point by the Cleveland Open Cup Method. The U.S. Coast Guard has certificated it for use as an article of stores on board vessels\*.

And *efficient*? You bet! CHLOROTHENE takes off tough greases, oils, tars, waxes and other contaminants with the cost-saving speed of carbon tet . . . yet for cold cleaning applications has extremely low corrosive effects on common metals and alloys.

Interested? No wonder. Better contact your local Dow distributor *today*. He's the man who supplies you with stabilized DOW TRICHLOROETHYLENE and PERCHLOROETHYLENE, too. For your distributor's location, or additional data on these superior solvents, return coupon to THE DOW CHEMICAL COMPANY, Midland, Mich.

†Trademark

THE DOW CHEMICAL COMPANY, Dept. 5946F-1, Midland, Michigan

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☐ Send more information on these solvents: \_\_\_\_\_

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CITY \_\_\_\_\_ ZONE \_\_\_\_\_ STATE \_\_\_\_\_

\*203  
Certificated for use as an article of stores on board vessels.  
This certificate covers only hazard in the use of this product. The efficiency of this product is not passed upon.  
26 April 1955  
U. S. Coast Guard

*you can depend on DOW SOLVENTS*

**DOW**



**What caused that accident?**

**What would have prevented it?**

# ACCIDENT POST-MORTEM

*A review of cases by Franklin G. Pater, Industrial Department, NSC*

THIS MONTH we are presenting only one case which, in our opinion represents a model investigation. The investigators are to be complimented on an exceptionally thorough analysis of all factors connected with the accident. Their report, which gets at the basic causes and offers specific and practical recommendations is presented here in slightly condensed form.

## **Failure of Standard Tool Snag Grinder**

**General Explanation.** Machine is a heavy duty, variable speed, snagging Grinder. Wheel size is 30x3x12 in. The machine carries two wheels, each on independent spindles, powered by a separate 15-hp. motor for each. Speed range is from 1210 to 2100 rpm.

Speed is normally increased as the wheel wears smaller to maintain 9500 surface feet per minute wheel surface speed.

Proper speed in relation to wheel diameter is normally maintained by screwing up the motor. This in turn causes the driving belts to ride outward on the Reeves variable pulleys, increasing the spindle speed. The amount

by which the speed is increased is limited to a safe speed by a linkage which causes the upper part of the guard to move in toward the wheel as the speed is raised. Since the wheel limits the travel of the guard, it therefore limits the increase in speed.

The accident occurred because a new wheel at maximum diameter was run at maximum rpm, far in excess of the safe speed, causing the wheel to burst. It is believed a fragment struck the man in the head, causing his death.

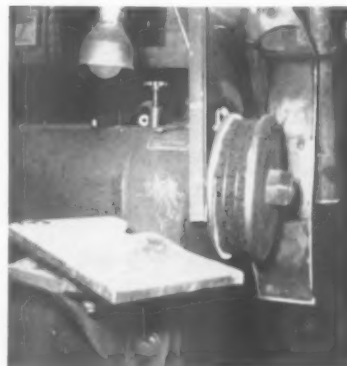
Apparently the accident was able to occur because a part in the safety linkage was broken, causing the automatic safeguard to become inoperative, and because the operator ignored instructions given during routine training to use the lowest speed when the wheel was full size. In addition, severe injury was incurred because the guard on the machine (supplied by the machine maker) was inadequate.

Figures 1 and 2 show a general view of the area, a detail of the undamaged side showing normal wheel and guard positions, the damaged side showing stub of wheel and broken guards, and the fragments of the broken wheel.

## **Description of Accident**

The injured employee was assigned to the gate and flash grinding of stainless steel castings for the turn on which the accident occurred. After approximately three hours of work the wheel on the machine was worn to the point where a new wheel was required. The injured employee, therefore, installed a new wheel with the help of another employee. This is a normal part of this job.

The wheel installed at this time



**FIGURE 2.**

was one of 12 received from the supplier. Six wheels from this lot were requisitioned and moved from stores to wheel storage racks in another building.

The regular day turn operator, seeing that a new wheel would be needed soon, selected one of these and moved it to a point near the machine. When it was needed, the injured employee opened the guard and removed the old wheel in the usual way.

It appears that he failed to return the speed from the high speed position (in which it would normally be at the end of use of the worn wheel) to the lowest speed position. This was indicated, when an inspection of the machine was made after the accident, by the position of the belts on the pulleys, the position of the motor, and by a speed check made after the broken pieces of the wheel and guard were removed from the machine.

This speed check showed 2100 rpm, the maximum rated speed of the machine. The employee, who assisted in the wheel change, assisted only with the lifting of the wheel and its placement on the spindle. He did notice the in-

—To page 124



**FIGURE 1.**

# Titan<sup>+</sup>

can take it !

Dramatic proof. With its unique bridge and rivet construction, Titan easily supports 54 lbs. without distortion. But—learn *all* about amazing Titan; write for 8-page folder:

Bausch & Lomb Optical Co.,  
90307 Smith St., Rochester 2, N. Y.



BAUSCH & LOMB

SINCE  1853



# Eyebolts for Angle Load Safety

By M. F. BIANCARDI

**S**HOULDER-TYPE eyebolts designed for greater safety are now being used in Allis-Chalmers West Allis Works. They are the result of investigations which disclosed that failure in conventional eyebolts generally occurred either in the threaded section or at the junction of the shank with the shoulder because of angle pull or side loads.

It was found that the bending stress concentrates in the base of the thread or at the shank-shoulder junction. The stress exceeds the ultimate strength of this material, resulting in a crack which spreads causing the bolt to break in two. (Sketch A).

Study of the problem pointed up the need for using a bolt design in which increased tension with correspondingly less bending stress would be concentrated in the shank during a lift. For this reason, straight-shank eyebolts were discontinued as standard lifting equipment in favor of the shoulder-type eyebolt.

In order to minimize the possibility of bending the shank of a shoulder-type bolt, it is essential that the shoulder must rest flush and tightly against the work surface. To assure this solid contact, lifts using shoulder-type bolts are permitted only where the surface has been spotfaced (Sketch B).

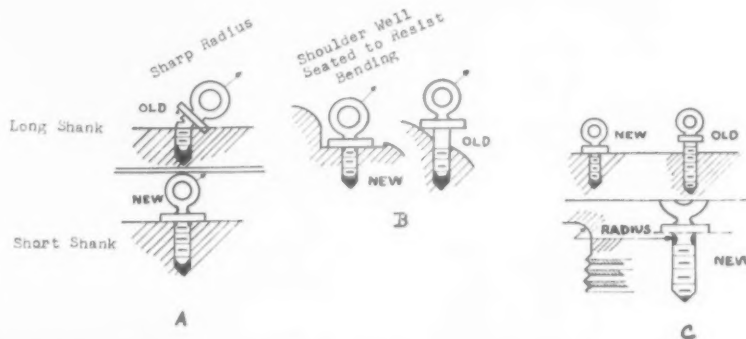
To prevent the shank bottoming on the hole before the shoulder makes contact, shortened lengths of standard bolts are used. To offset this reduction in length, the shank is threaded up to the shoulder and is then relieved by a specified radius (Sketch C). This further reduces the stress concentration which had been experienced previously in this area of the shank when subjected to side loading.

The actual safe load for each  
—To page 103

M. F. BIANCARDI is Manager, Safety Services Section, Allis-Chalmers Manufacturing Company, West Allis, Wis.



**TEST FIXTURES** developed at Allis-Chalmers by Charles N. Gillespie under Safety Services Section supervision to verify theoretical findings in determining the actual safe load of each size shoulder-type eyebolt for straight and angle pulls.

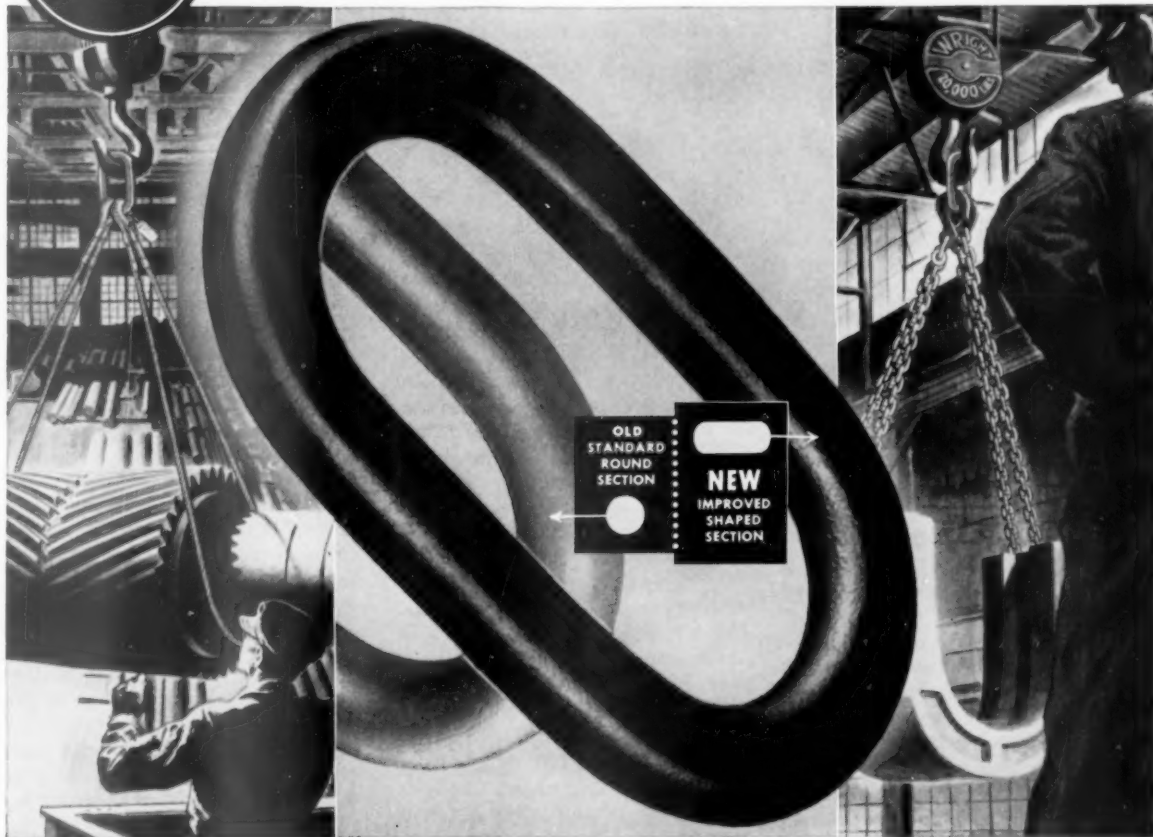


**REDUCING STRESS** on eyebolts. (A) Severest stress is at shank-shoulder junction. Shortened standard bolt threaded to shoulder prevents shank bottoming hole before shoulder makes contact. (B) To assure solid contact of shoulder on work surface, shoulder is spotfaced. (C) Stress on bolt is further reduced by specified radius.



# ACCO Registered\* Slings—Wire Rope & Chain

THE STANDARD OF EFFICIENCY AND SAFETY



## An Extra Bonus of Safety for Slings— **THIS NEW SHAPED MASTER LINK**

• ACCO's engineers found that if they shaped the master links for chain and wire rope slings as shown above, these new shaped links would hold their form under loads up to 18% greater than could the old standard round links. The reasons are similar to those which enable a shaped I-Beam to handle greater loads than could the same amount of steel if used as a solid beam.

The new link is smoother and provides a greater factor of safety. It is a better link in many ways. It costs us more to make. Yet it is offered at no increase in price.

**"Registered"**—for Greater Safety  
Development of this new link is just the latest step in ACCO's continuing program to provide the greatest pos-

sible measure of safety and reliability in ACCO Registered Slings.

Each component of an ACCO Registered Sling is made from the best materials procurable for its use. Each part must prove to have strength equal to or greater than the sling body. All hooks for ACCO Registered Slings are Magnaflux tested. Then these components are assembled into slings according to carefully engineered designs that have proved themselves in

\*Trade Mark Registered

rigorous field tests.

The completed sling is then individually proof-tested to twice the working load limit for which it is rated. Then, and only then, is it awarded the coveted ACCO Registration Certificate and the identifying ring or tag.

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ACCO Registered Slings are readily available from a distributor near you. If you don't know him write to our Bridgeport office for his name.

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In Canada: Dominion Chain Co., Ltd., Niagara Falls, Ont.

**Better  
Value**



# INDUSTRIAL HEALTH



## Abstracts of current literature

### on Occupational Hygiene, Medicine, and Nursing

By F. A. Van Atta, Industrial Department, NSC

#### What Causes Fatigue?

"Fatigue," *Occupational Health Bulletin*, Volume 11, No. 7, April 1956.

ALTHOUGH FATIGUE is a common complaint and recognized by everyone, there is really no single definition of fatigue which is useful for all purposes. Most authorities agree that it is a protective reaction against rest, and the individual identifies it as a feeling of weariness, no ambition, or being all tired out, but actually fatigue may be caused by a variety of factors physiological, pathological and psychological, any one or all of which may be involved in any single instance of fatigue.

Probably the most obvious reason for fatigue is muscular exertion. Those who use large groups of body muscles for a relatively long period expend a great deal of energy but considering the amount of energy they expend will have surprisingly few complaints of fatigue.

A more common cause of complaints of fatigue is diet. This may be the result of either insufficient intake of calories, which will be the cause of a feeling of fatigue and weight loss over a time or with an adequate quantity of food a diet deficient in certain vitamins or minerals may cause weight loss and a feeling of fatigue. Under some conditions a proper diet may be improperly utilized in the body with the same result. The opposite error, overeating, may result in fat storage with a greater burden on the muscles and also result in fatigue and decreased efficiency.

Extremes of temperature will put a greater load on the heat regulating mechanism of the body and deplete the energy supply necessary for work. In a cold environment much energy is used in attempting to keep the body

warm and in hot environments a loss of salt and water can result in a feeling of severe fatigue.

An improper work situation may sometimes result in excessive fatigue. In particular improper posture either as the result of habit or as the result of cramped working space, uncomfortable stools or chairs, or work which requires maintaining one position for a long time or working in an awkward position can result in undue stress of certain muscles and joints and make the workman feel unusually tired at the end of the day.

Lighting which is inadequate in amount or in quality may also add to fatigue by causing eye strain and by contributing to a poor or cramped posture. Even with good lighting some jobs which require continued visual concentration on fine details may be quite fatiguing unless the eyes are rested periodically and the eye muscles given a chance to recover.

As an individual ages his capacity for heavy work decreases and he may find himself becoming more fatigued at the end of a day's work although habit and experience on the same job can greatly modify this factor.

#### Mental Causes

The psychological causes of fatigue are very complex but great fatigue, even in the absence of any muscular work, can result from boredom with repetitive monotonous work or from working on a job which is not satisfactory for the person. Dissatisfaction with a job produces irritability and tension which in turn saps energy and produces a feeling of tiredness out of all proportion to the work actually done.

Worry over almost anything

whether it is individual, financial, family or other personal troubles or over the job, health or security can become very fatiguing.

Such worry is often caused by poor personal relationships between the employee and his fellow workers.

One rather common cause of worry or fatigue is the attempt to encompass too many activities in the allotted time so that the individual is being continuously hurried and harried by the next occupation coming up. These people are frequently chronically tired simply because they never permit themselves any rest or relaxation.

#### Symptom of Infection

A feeling of continuous fatigue or of easy fatigability may be the first indication of quite a number of disease conditions resulting either from infection or from contact with the materials used on the job.

It is obvious that excessive fatigue has undesirable effects both on the individual and on the industry and should be avoided although there is certainly no harm in feeling tired at the end of a day's work. For the individual the avoidance of fatigue amounts simply to carrying on a normal life without going to excess in anything.

In particular it involves taking advantage of rest periods to get away from your work and developing some recreation or hobby for off-hours to keep you interested if your regular work is monotonous or boring. Above all, one should not rely on energy pills to get a lift when he is tired.

Industrial management can do a great deal to eliminate the situations which are conducive to fatigue by careful job planning and by placement of employees in jobs to which they are suited.



## SUPERGOOGLES by Jackson

### Truly a Cover-All Design

They're *wider* to allow plenty of inside room for good fit and free up and down movement where today's larger (never wider than  $5\frac{11}{16}$ " ) prescription and safety spectacles are worn.

They're also *deeper*, to clear the bridge of "horn-rimmed" glasses, somewhat deeper along the temples to afford greater side protection to the eyes, without being bulky.

This width and depth, added only where needed, gives an 18% greater, well ventilated inside area, making the Supergoggles also more comfortable, cooler to wear.

Eye cups are of strong plastic, non-conductive, non-irritating. A large, screen covered vent in each cup prevents fogging. Cups are joined by a metal bar, flexible enough to fit the goggles individually, rigid enough for one-hand positioning. A large leather pad closes in softly around the nose. Lenses, held by threaded plastic retaining rings, are replaced without tools.

### Series '70'

**For Gas Welding, Flame Cutting & Brazing,** types W-70 and WR-70 have 50 mm. lenses, shades 3 thru 6. Baffle plates over vent screens exclude light, flying particles.

**For Chipping and Grinding,** types G-70 and GR-70 have 50 mm. clear, hardened lenses.

**Elastic Headband** holds WR-70, GR-70.

**Plastic Headrest** holds types W-70 and G-70 more firmly. Extruded plastic, impregnable to moisture, holds its shape, is easy to sterilize. Positive locking adjustment has clearly marked hat sizes. Cork-padded sweatband is easy, inexpensive to replace. Adjustable springs, in telescopic arms, hold goggles gently against face.

Series '50' Goggles fit over narrow-frame prescription glasses and safety spectacles



Series '60' Unigoggles fit over the widest prescription and safety glasses now in use



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# Excavations Needn't Be Deathtraps

Prevention of slides, cave-ins, falls and accidents with power equipment are problems to be overcome

By ROBERT WENDELL

**S**ELDOM does a day go by that we can't pick up a local newspaper and read that some workman has either been crushed or smothered to death by a slide or cave-in on an excavation job. One big reason for this type of accident is that too many people are fooled when they think that a



slice of earth is as solid and stable as it looks.

The physical stability of the materials in the earth structure, such as quicksand, clay, wet sand, coarse sand, soft or hard rock varies considerably and any one of these materials may be found in a single cut.

On an excavation job we must first investigate the location of the job and determine whether our work will disturb any nearby building, sidewalk, road, trees and power poles. The location of underground utilities such as electric, telephone, gas, water and sewer mains must be determined before excavation begins. If these utilities are to be removed, service must be discontinued before operations begin. If utilities are to be left in place, protection against their damage must be provided during operations.

ROBERT WENDELL is Chief, Safety Branch, So. Atlantic Division, U. S. Corp. of Engineers, Atlanta, Ga. This article was reprinted from the Army Corps of Engineers 1954 Safety Bulletin.

Next, we must study the character of the soil and find out whether it is more practicable to slope the cut enough to assure against a cave-in or to shore it. If shoring is to be used, experience has taught us that in practically all materials, except solid rock or hard shale, shoring should be provided as soon as we reach a depth of four ft. and should be extended as the cut is made deeper until the bottom of the excavation is reached.



Fills are particularly treacherous regardless of the material and all cuts through fills must be shored solidly. When a cut is alongside a previously backfilled excavation, special precautions



must be taken. Saturation of parallel backfilled trenches will exert pressures on the side of a cut that can prove disastrous if shoring is not provided and reinforced to resist the added pressure.

When the water table is high or there is a broken water line at or near the excavation, the stability of the side of a cut decreases as the degree of saturation rises. A rainstorm may increase the earth pressure by as much as 33 per cent, therefore

we must design our shoring to withstand these additional pressures.

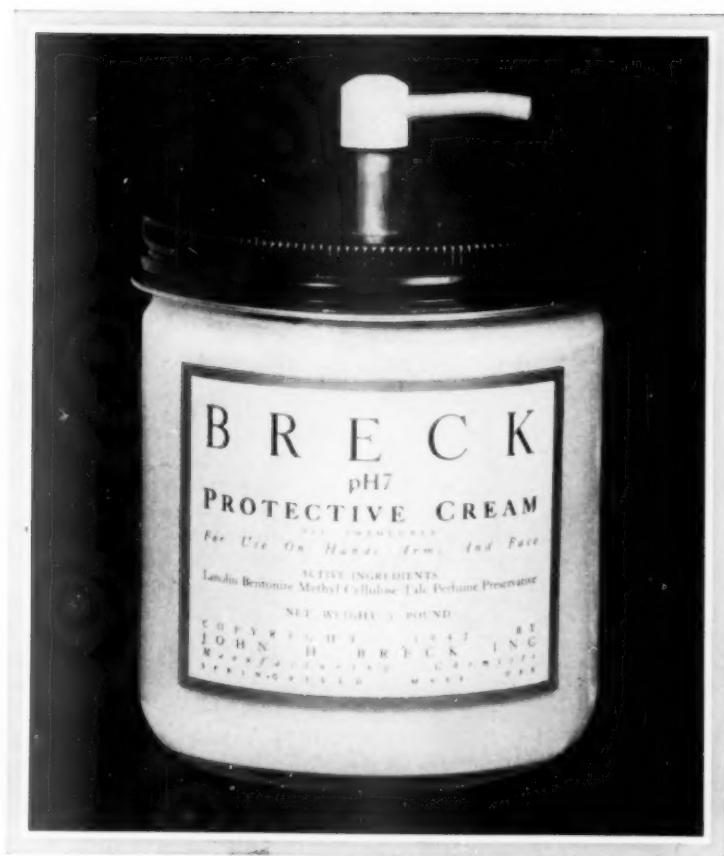
The possibility of rains, frosts, and thaws must be considered since slides and cave-ins often result from such causes. Excavation is a very expensive operation and having to do it a second time due to a slide or cave-in is a needless waste of time and money and often will delay or stop the entire job. Of course the best procedure is to backfill as soon as possible.

Sometimes it is necessary to excavate near roads or where cranes or other heavy equipment are operating and the vibration of trucks or other equipment will cause sudden cave-ins.



If a cut has a nearly vertical face, a crack will develop on the surface parallel to the edge of the cut and back a distance of about one-half its depth. A rupture will eventually develop along this crack, dropping almost vertically for a distance, then curving in to the wall of the cut near the bottom. It is quite certain that a cave-in will eventually occur along such a rupture and any saturation of the soil, nearby vi-





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brations, freezing or thawing will speed the failure.

Excavating along an adjoining foundation wall at a greater depth than the foundation is a tricky proposition and before proceeding with the excavation the engineer should be consulted for advice as to the bracing and underpinning required to prevent the footing from settling.

If a cut has to be made along a roadway, sidewalk, or high earth bank, care must be taken not to undermine and the sidewall must be shored tightly and braced with walers and struts.



When making a cut, the excavated material must be placed back from the face of the cut. If this is not done, sooner or later, a rock or clod will fall into the cut, striking a workman, or the overburden created at the top of the cut will result in a slide or cave-in.

The idea that any kind of material lying around the job is good enough for shoring is entirely wrong and extremely dangerous. Materials used for sheeting and sheet piling, bracing, shoring and underpinning must be in good serviceable condition, and timbers must be straight, sound, free from large knots, and strong enough to withstand the loads that will be imposed upon them.

Wood sheathing must be at least two in. thick and to adequately support the sides of the excavation. Planks used as sheathing are merely beams supporting the lateral earth pressure loads.

The maximum allowable distance between the horizontal stringers or walers must be such as to keep the planks within their safe bending stress. Braces are merely columns or struts and must do the same job as any column or strut.

The most important thing in preventing accidents and delays in a trench excavation is to get



the work done in the trench as quickly as possible and then back-fill it immediately. Leaving a trench open longer than necessary is an invitation to accidents and is inexcusable.

When men are required to work in trenches or other excavations, access to and from the excavation must be provided. This is usually done by providing safe ladders every hundred feet of trench for the workmen; otherwise they may be subject to jumping and climbing hazards.



Men working in trenches must be spaced far enough apart to avoid being struck by tools or materials wielded by fellow workers. They should also be provided with safety shoes, hard hats, and other safety apparel as appropriate to the hazards involved.

All excavations which cross or border on paths, walkways, sidewalks, driveways, or thoroughfares must be provided with suitable guardrails or barricades and red lights or torches during darkness. Trenches or ditches which men or equipment are required to cross must be provided with walkways or bridges with proper guardrails. When a man falls into a trench 10 ft. deep he lands just as hard as if he had fallen to the ground from a scaffold 10 ft. high. If we do not properly shore and guard our excavations we are merely creating "man-traps" which not only trap men, but usually seriously injure or kill them.

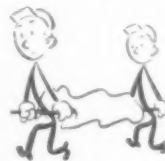
Shoring and guarding should be inspected daily. Just because an excavation was safe yesterday does not necessarily mean it is safe today. Often a man will remove a brace that he thinks is unnecessary and in his way. Vibrations, saturations, freezing, and thawing can also make short work of changing a safe trench to an unsafe one. We must always be on the lookout for any change



that might make one of our excavations a "man-trap."

The same planning and care used in installing shoring must be exercised in dismantling operations. The lower braces should be removed first, leaving the upper ones in for protection. All braces must be removed cautiously, either by pulling from above or by using screwjacks to take up the strain or wedged timbers and permit their removal. The strain on the jacks should always be removed slowly. Back-filling should be placed and compacted to support sides of the excavation before cross braces are removed.

There is no excuse for anybody being injured or crushed or smothered to death in excavation work. We must plan properly, apply sound engineering principles, and provide reasonable



guarding and warnings. A slice of earth is not always as solid and stable as it looks and the quicker we get an excavation filled the better off we'll be. We must continually inspect our excavations with the thought in mind that it takes very little change for a safe excavation to become a "man-trap."

## Plan Student Hunting Course

ACCORDING to a dispatch in the *Chicago Tribune* a course in hunting will be offered thousands of students in Maine secondary schools next fall.

Procedures have been worked out by the state education and inland fish and game departments.

The course is an effort to curb the increase in hunting accidents and will include firearms safety and woods survival. It can be given in as little as six hours or can easily be expanded to give more emphasis to details.

A guide for the course is being put in form for the aid of teachers who will handle the work locally.

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Mechanical Goods Division

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# An Industrial Community Organizes for Safety

By HEDWIG S. KUHN, M.D.

**I**N MAY 1956, a brand new Safety Council was set up in Hammond, Ind. It stems from the Civics Division of the local Chamber of Commerce, uses the Chamber of Commerce office for clerical help, library purposes, financial headquarters, and has the full cooperation and active participation of its executive secretary. However, the Council is unique in that the individuals activating the program and the objectives of the program itself are more than ordinarily on a community-wide basis.

The organizational plan is very simple. An Executive Committee of 10 persons is the actual controlling body of the Council activities. Members were not chosen for their representation of any particular group or organization, but for their "knowhow," their tremendous interest in safety, and their sense of responsibility toward the community. The Executive Committee decides what projects are to be undertaken, the order of priority, and under whose chairmanship and guidance.

A board of committee chairmen chosen by the Executive Committee functions as the working unit of the Council. The Committee chairmen represent special fields of effort, such as large industry, small industry, traffic, disaster, communication, fact-finding, home safety, etc. Members of these subcommittees are

carefully scrutinized by the Executive Committee to assure the distribution of the work among individuals who have been eager to serve in some capacity, while on the other hand, the load can be lessened for those individuals who have been overworked.

One of the main objectives of the Council is to find the existing small groups or large groups that already have been making efforts in the direction of safety, such as P.T.A.'s, Jaycees, fire and police departments, nursing groups and medical groups. This is done for two reasons: to promote, stimulate and help the worthwhile work already in process by any group, large or small, and secondly, to prevent duplication of effort, money and time.

The Calumet area is one of great tension, not only because of concentration of industry, railroads and traffic, but also because of the concentration of nationalities, language problems, difference in education and local skills aggravated by a constant flux of people in and out of the area—New Englanders, Puerto Ricans, Southerners, ad infinitum. In the presence of such a variety of reasons for tension (tension leading to an increase in accidents and often to panic), the new Council feels an added responsibility.

We have now set up seven committees. There will be many more, but we do not wish to dilute our effort at first. Now being activated are:

1. A fact-finding committee basic to the entire program. This committee is using the leadership of innumerable small organizations in the district to dig out the groups, organizations, and/or people already doing things toward safety.

2. Traffic committee: This, of course is of great immediate concern.

3. Committee on safety in large plants. This area is already effectively and efficiently functioning as The Calumet Industrial Safety Council with Paul O'Neill as leader. Here, we hope to establish a close working liaison of mutual benefit, but have no desire to take over or to mask the identity of this group.

4. Committee on safety for small industries and independent contractors: This is the most difficult area of effort, and the one where promotion and programs are most needed.

5. Committee of insurance company safety engineers: will pool the skill of this fine group.

6. A committee (probably temporary) to study problems of ambulance runs and ambulance personnel: composed of two doctors, two lawyers, a member of the Police Department and a member of the Fire Department, their interest being centered on such things as excessive speed, danger of going through red lights, and the knowledge that only three states require training of ambulance personnel, and only two states require first aid equipment.

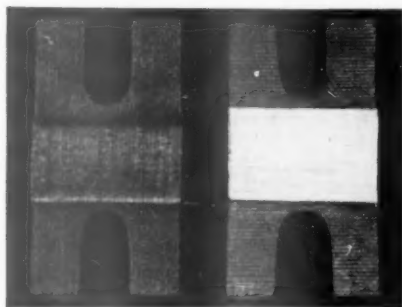
7. Last, but most certainly not least, is a grass-roots Disaster Committee. Our concept at this stage of development is not to make paper plans for Civil Defense against atomic bombs, but to organize and inculcate simple fundamental understanding of what, when, how, where to do this or that in advent of a fire, a tornado, an explosion, a flood, danger in an office building, store or home. Drawn into the work of this committee is the role our radio station WJOB plays, the role of the telephone company, the Red Cross, the National Guard, any area police and/or fire department plans that may develop or are developed.

In addition to the basic committees, there will be so-called working committees assigned to a single specific task, and then, when that is accomplished, they are to be dissolved. This helps to spread the work effort. An ex-

—To page 126

DR. HEDWIG S. KUHN is a partner in the Kuhn Clinic, Hammond, Ind., and a consultant in industrial eye problems. In addition to her many activities in ophthalmology and accident prevention she has assumed the duties of president of the recently organized Hammond Safety Council.

# NEW! unit first aid packets



## KNUCKLE BANDS

These new bandages are a necessity for every modern first aid supply. They are the only convenient method of covering knuckles, fingertips and other places where ordinary dressings are inadequate. Sterilized and packaged individually in unit packs of 8 or 16.



## NEUTRALIZE for acid or alkali burns

Neutralize instantly counteracts caustic action of either acid or alkali, rendering the chemicals harmless. May be safely used in the eyes or on the skin. No time loss determining whether chemical is acid or alkali. In polyethylene containers 4, 8 and 32 ounces.



## UNIDROP

Eliminate danger of contamination and irritation from applying antiseptics with old fashioned cotton swabs. With modern Unidrop tubes, a gentle squeeze of the polyethylene, brown tube releases merthiolate one drop at a time — there is no contact between wound and applicator. Available in bulk and in Unit packs.



FIRST IN INDUSTRIAL SAFETY

## first aid kits

In times of emergency when seconds count, Bullard safety green unit first aid kits prove their value. Flick open the welded snap locks, exposing the clearly marked unit packets, the right treatment with the right application is instantly at your fingertips.

## built to last

The long life of Bullard first aid kits means savings to you. These kits, in the new Hammertone finish with removable gaskets, are weather-proof and dust-proof. Snap locks and back hinges are spot welded to prevent air leaks. Under the most rugged conditions, Bullard kits are always ready for instant use. Special unit packs are available.

### FREE

Write for descriptive literature on first aid or other Bullard safety equipment.

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# SHOWMANSHIP IN SAFETY

By B. J. O'Brien, Public Information Department, NSC



## Showman-of-the-Month for June—M. M. Clancy

M. M. Clancy, supervisor, safety and welfare, for Ryan Aeronautical Company, Lindbergh Field, San Diego, Calif., became our Showman-of-the-Month for June with his eye safety demonstration. Mr. Clancy becomes number five on our list of prize winners and will receive a beautiful Ronson Adonis cigarette lighter and thus becomes eligible to win the Safety Showman-of-the-Year Award, a Parker "Magnetix" desk set.

Why not try your luck? Just send us a picture and a short description of your favorite safety stunt and explain how it ties in with your safety program. Who knows, maybe that Adonis lighter will be heading your way next month. Any idea that stimulates employee interest in safety is eligible—and the idea need not be created by you. Send your picture and story to "Showmanship in Safety."

## Teams Compete for Cash Prizes

A combination safety and incentive system devised by Michael Schiavone & Sons, Inc., is reported by Albert L. Phillips, executive director, New Haven Safety Council, New Haven, Conn.

To encourage employees to be safety minded and to recognize their efforts in giving better service to customers the corporation has devised a demerit system based on so many demerits per accident. A total of \$500 is set aside each quarter for employee distribution.

Here's how the system works: Seven teams comprised of 11 men are selected so that all departments will have representation on each team. Demerits are charged

against the responsible person's team for such violations as personal injuries, care of equipment, customer complaints, motor vehicle violations, etc. Some accidents carry more demerits than others and the team having the lowest number of demerits at the

end of the quarter becomes the winner.

Three hundred dollars is distributed in equal shares among the members of the team that has the best record of safety and performance. Two hundred dollars

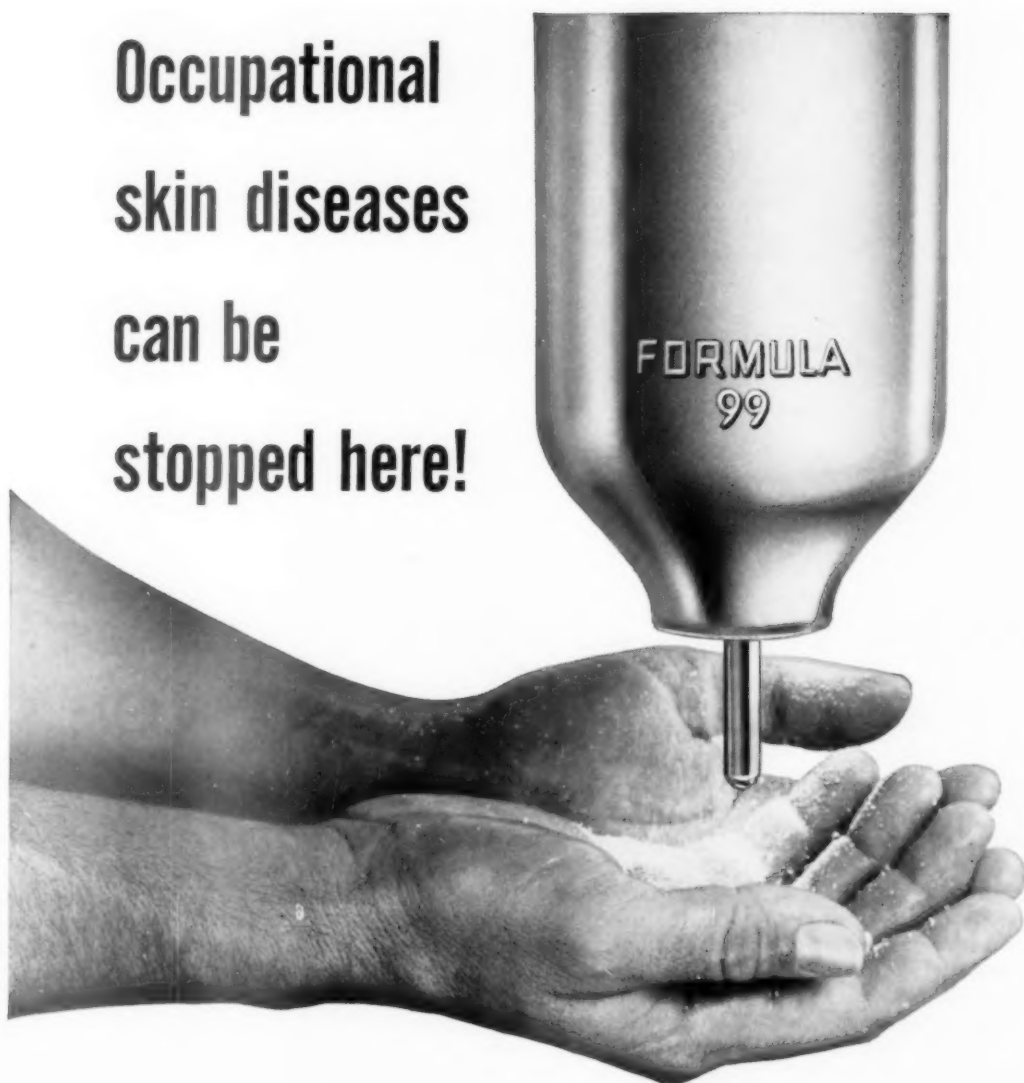
—To page 122



**KNIGHT SHIFT?** No, just one man's idea of how not to get hurt on the job! He recently clanked through Minneapolis-Honeywell's plants in an attention-getting dramatization of National Job Safety Week.

Actually, the firm's employees are already pretty well sold on safety; they recently received their 14th straight safety award presented by the governor of Minnesota. In 1955 M-H averaged 1.37 lost-time accidents per million man-hours worked, contrasted to the national average of 11.9 lost-time cases.

**Occupational  
skin diseases  
can be  
stopped here!**



**Armour Hexachlorophene Soaps destroy up to 95% of skin bacteria that spread infection—offer you the easiest, thriftiest way to protect employees!**

Absenteeism and employee inefficiency caused by skin infection and dermatitis will cost industry more than 100 million dollars this year! How much will they cost you? You can protect your employees by simply replacing the ordinary soaps in your washrooms with Armour Hexachlorophene Soaps—Armour Liquid or Formula #99® (a germicidal powdered hand soap with either borax or a heavy-duty vegetable scrubber added). This step can add important benefits in insurance and labor relations, too!

These Armour Soaps thoroughly cleanse the skin of irritants that cause contact dermatitis and destroy up to 95% of the skin bacteria that cause and spread infection. Only Hexachlorophene gets these results—it's the first germicidal agent ever found that stays antiseptic in soap.

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**Booklets**— ☐ "The Prevention of Occupational Skin Diseases"  
☐ "Hexachlorophene Soap for Industry"

**Trial order:** ☐ Armour Liquid 5 gal. @ \$3.00 per gal.—\$15.00  
☐ Formula #99 (Vegetable) 10-5 lb. bags—\$12.00  
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**LEFT:** Meeting and cocktail party sponsored by the Chamber of Commerce of Puerto Rico during January to announce the program for Agricultural Accident Prevention Month. From left to right: Juan Perez Roa, president, U. T. M.; Blas Oliveras, under secretary of labor; Mr. Franceschini, representative of the Chamber of Commerce; Guillermo



Atiles Moreu, manager, State Insurance Fund; Francisco Paz Granela, president, Industrial Commission, and (standing) Francisco Lopez Dominguez, president, Council for Accident Prevention in Agriculture. **RIGHT:** Meeting of the committee in charge of the Accident Prevention Congress in Fajardo, Puerto Rico.

## Puerto Rico Stages Farm Safety Month

**W**HAT started out as Farm Safety Month in Puerto Rico last February produced important developments for industrial safety in the Island. So successfully was the "Month for the Prevention of Accidents in Agriculture" promoted that the Council for the Prevention of Accidents in Agriculture has expanded its activities to include industry, commerce, and other branches of labor and the government has created the Council of State Agencies for the Prevention of Accidents.

Following the proclamation by Governor Luis Munoz Marin of February as Farm Safety Month, planning was begun by the Bureau of Industrial Safety and Accident Prevention of the Department of Labor and the Council for Accident Prevention in Agriculture. Two preliminary meetings were called—one for representatives of government agencies and the second for representatives of private enterprises, labor organizations, and civic institutions.

A program was formulated and

in January the Puerto Rico Chamber of Commerce held a meeting and cocktail party to inform the press, radio and television stations, and advertising agencies of the campaign.

At the suggestion of Manuel Gomez, member of the executive committee for the campaign, it was decided to mark the beginning of the Month with announcements pointing out the significance of the campaign.

This proposal had such a good acceptance that Secretary of Public Instruction Mariano Villarronga directed that the school system throughout the Island support the campaign using teachers and school children in the promotion of the publicity campaign. On February 1 students were instructed by their teachers in safety practices.

Enthusiastic backing also came from federal and state government agencies, local radio and television networks, employers and labor, private institutions, and the general public.

The Bureau of Industrial Safety and Accident Prevention pre-

pared a special edition of the monthly *Accident Prevention Bulletin* which included a model program to be developed by committee members, agencies, and other participants; a list of safety education material supplied by the Bureau; names and addresses of safety inspectors assigned to the various areas of the Island; accident statistics, and other information.

In addition, posters, leaflets, booklets and other safety materials were widely distributed. Decals calling attention to the campaign were placed on 9,500 windshields of public conveyances, trucks, and private automobiles.

Plans for future improvements in industrial safety were discussed at nine local congresses in the nine districts of the Island—San Juan, Ponce, Mayaguez, Caguas, Aguadilla, Humacao, Fajardo, Arecibo, and Guayama.

Movies on safety subjects, distribution of awards, raffles, and a variety of entertainment attracted about 5,000 visitors.

—To page 129



Courtesy and resourcefulness qualify her for the job. Gaye Evans, telephone company Service Representative, obtains information for a customer regarding his telephone service.

PHOTOGRAPHS BY ANSEL ADAMS

## She Likes to Help People

A story about one of the telephone Service Representatives whose "voice has the smile" whenever there's anything you'd like to know about telephone service.

One of the nice things about the telephone business is the way it brings us close to people.

Many, many times each day—in your community and in countless communities throughout the land—we have the opportunity and the privilege of friendly contacts with those we serve. Sometimes they are by telephone. Very often they are personal visits.

Among those who have these contacts are Business Office Service Representatives like Gaye (Mrs. Robert) Evans.

"What we like people to do," says Gaye, "is to think of us as their personal representatives at the telephone company. Whenever there's any question

about service or a bill or you're moving or needing more service, we're here to help in every way we can."

Gaye Evans' job takes a special type of person. One who is not only efficient but understanding as well.

Gaye qualifies in many ways. Even in her leisure hours, she finds time to help others, especially the handicapped and the needy. Another of her activities is rehearsing a 26-girl choir.

Gaye sums up one of her main satisfactions this way: "It's nice to have people think of the telephone company as a place where they can always find courtesy and consideration. That's our job and we try to be good at it."

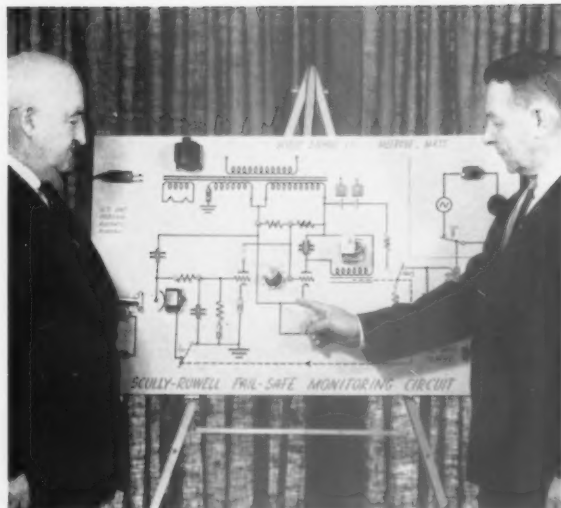
**Helping the Blind.** Raising money to provide "Guide Dogs for the Blind" has been one of Mrs. Evans' activities in the Venture Club—an organization of Oakland (Calif.) business women.



BELL TELEPHONE SYSTEM







**LEFT:** This new fail-safe monitoring circuit is applicable to burglar and fire alarms, heating systems, railroad and aircraft safety devices, and to other automation, military, and atomic energy systems. **RIGHT:** A fail-safe furnace



flame monitor, consisting of a torch unit held by its inventor, William G. Rowell (right), and a panel mounted circuit, has tested its own performance more than 6 million times by a unique pulsation method.

## Fail-Safe Monitoring

**This control system for automatic equipment never sleeps. If expected trouble doesn't develop, it creates its own periodically to check on the device**

**A**UTOMATION and control systems can be made safer by application of the fail-safe technique. A device employing this principle has been developed recently by Scully Signal Company, Melrose, Mass.

The fail-safe technique is basic in principle and can be applied to practically any type of automatic system, including fire and burglar alarms, industrial and home heating systems, railroad and aircraft safety devices, and a variety of military and atomic energy automatic systems.

Demonstrations show that very few additional components are required to change a conventional system from its unsafe static form to a new dynamic self-checking design. U. S. and foreign patents are pending on the technique, and the first nonexclusive license for commercial use has been issued.

The control system stays alert by constantly prodding itself. If the trouble for which it is watching does not occur, the monitoring system does not become bored and doze off. Instead, the fail-safe monitoring system actually creates its own trouble by simulating the unsafe condition. If the self-checking system responds properly to the simulated danger, it is certain to perform when the real calamity strikes.

In all applications of the technique, the dangerous condition is simulated periodically. A heating coil, for example, placed near a fire-detection device, is used to periodically create the condition of a hot flame. A small radioactive source is repeatedly brought near a critical radiation detector to prove that the detection system is alive and ready to sense a dangerous radiation condition. A store burglar-alarm circuit is pe-

riodically broken open to simulate the burglar breaking his way in through a window.

To show the new safety control technique in operation, engineers made a simple modification of the float system which is supposed to warn when water becomes low in a steam boiler.

Failure of the water-level monitor has caused 38 per cent of all steam boiler explosions, resulting in millions of dollars worth of damage.

The Scully-Rowell adaptation is simple. It involves the use of a plunger to periodically sink the float every few seconds. By lowering the float in the same manner as the dangerous low-water condition would do, the entire water-level monitoring system is constantly proved to be in working order.

As the float is bobbed up and down between its safe and unsafe

**Higher Efficiency  
... Greater Safety**

**Lower Material  
Handling Costs**

**with  
JalFlex  
Slings**

If you want wire rope slings that have the greatest flexibility, high strength and long, safe service life, J&L offers you braided slings of outstanding workmanship combined with the particular design best suited to your job.

There's a JalFlex sling for every handling job from 55-gallon drums to diesel locomotives. Their quality is the result of J&L know-how in the production of steel, steel wire, and wire rope. Every unit in J&L's complete line is designed and proved to give you the safest, most economical material handling.

Find out about JalFlex slings today. Get a copy of the new JalFlex sling catalog. It gives easy-to-use information on J&L slings and fittings, including a J&L exclusive, JalKlamp, the special alloy sleeve that produces a splice as strong as the rope itself.

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## There is a better way to register safety messages!

"Safety messages that get read" the National Safety Council confirms, "do help reduce accidents." Yet how difficult it is to get them read — particularly the familiar simple cautions we are all so prone to disregard.

### Here's one way to do it

AJAX CUPS put your safety message right in your worker's hand, several times a day, at just the moments when he is relaxed, receptive, ready to read.

At the same time, these crisp, clean AJAX Cups provide the most convenient, comfortable drinking water service, boost worker morale, and reduce the hazards of transmitted infections.

Any bubbler fountain is easily converted to provide this service. Ask your paper merchant about it.



**AJAX® Cups** — one-piece, wedge-shaped, easy to hold and drink from; in 4, 6 and 7 oz. sizes; packed imprinted with assorted stock safety messages at no extra cost or your own message to order.

**AERO® Cups** — for those who prefer a flat-bottom cup; in 3, 4, 5 and 6 oz. sizes. Also with stock safety messages or your own message to order.

### GET THE FULL STORY

Write us today for this new folder which gives full details about safety-imprinted AJAX and AERO Cups and equipment.



## United States Envelope Company

General Offices: Springfield 2, Massachusetts

15 DIVISIONS FROM COAST TO COAST

positions, it makes a sound more like a bullfrog than an advanced scientific device, but this sound is proof that the crucial control system is alive and in proper operation. If the float should stick or sink, or any part of the electronic control circuit fails, this characteristic pulsing action will cease and a warning alarm will be sounded or a corrective action taken.

The Scully-Rowell method has already been applied to fire-detection systems, machine safety controls, furnace flame monitors, photocell intrusion alarms, and liquid-level controls. Leading manufacturers of industrial control equipment are now adapting the technique to commercial systems. One of the fail-safe oil burner controllers has just completed 15 months of continuous trouble-free operation at the Polaroid plant which makes the Polaroid-Land camera film, and has checked itself over six million times to prove and assure its safe performance.

Insurance underwriters have examined the new system under every conceivable operating condition and have concluded that "its unusual feature is that there is no electronic component whose failure would cause an 'unsafe' condition." It has further been stated by independent testing laboratories that the Scully-Rowell technique is "unique" and that "so far as we know, this circuit is the only one which has no unsafe failure possibility."



"Seems it's in his nature—he's got an inner compulsion to do things the hard way."

## Calendar Contest Winners For May, 1956



First prize of \$100 in the National Safety Council's Safety Sayings Contest goes this month to June Marchand of Bristol, R. I. The theme in this contest was "anticipate trouble." Miss Marchand's saying was adjudged the best of all those submitted. It was:

*"A little headwork to save a heel."*

Second prize of \$50 went to Gordon A. Welch of Albuquerque, N. M., for this saying:

*"Rigged Right."*

Third prize of \$25 was awarded to Winifred B. Jenkins of Medford, Ore., for the following saying:

*"'Steeling' in!"*

Thirty \$5 awards were issued to:  
Mrs. Eleanora M. Kizer, U. S. Rubber Co., Mishawaka, Ind.

Mrs. Margaret B. Collins, Bradford City School District, Bradford, Pa.

Ruby K. Thaxton, The Procter & Gamble Defense Corp., Amarillo, Tex.

Paul B. Banner, Carolina Giant Cement Co., Harleyville, S. C.

Mrs. Lois Godlove, Akron, Ohio (Individual Member).

J. W. Habowski, The Dow Chemical Co., Midland, Mich.

Arthur L. Handley, Sr., Hqrs. Third Army, Ft. McPherson, Ga.

Mrs. Howard Nordlund, General Insurance Co. of America, Seattle, Wash.

Mrs. Herman G. Haase, Oliver Iron Mining Div., USS, Duluth, Minn.

J. R. Dean, Consolidated Mining & Smelting Co., of Canada, Ltd., Kimberly, B. C.

Mrs. R. E. Marshall, Borden's Mitchell Dairy, Bridgeport, Conn.

Kenneth Burlingham, Pittsburgh & Conneaut Dock Co., Conneaut, Ohio.

*Turn page*

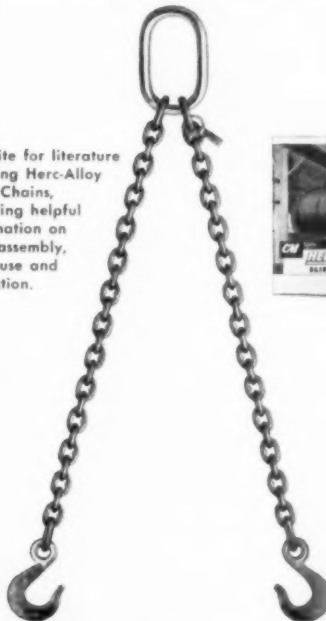


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Robert T. Gidley, Dallas, Tex., (Individual Member).

Willard E. Dickinson, Milldale, Conn. (Individual Member).

Eber H. Brown, Consumers Power Co., Saginaw, Mich.

Felix Hrusovsky, Sylvania Electric, Wheeling, W. Va.

Mrs. Amil Lloyd Sutter, International Harvester Milwaukee Works, Milwaukee.

S. J. Di Domenico, Pittsburgh Post Office, Pittsburgh, Pa.

Mrs. J. R. Maxwell, West Texas Utilities Co., Abilene, Tex.

Ruth B. Williams, E. I. duPont de Nemours & Co., Inc., Gibbstown, N. J.

F. M. Dudley, Alpha Portland Cement Co., Birmingham, Ala.

John Michelmore, Southern California Gas Co., Los Angeles.

Mildred R. Pitts, The Texas Co., Port Arthur, Tex.

Timothy Hurley, First Coast Guard District, Boston, Mass.

G. Purich, Canadian Industries Ltd., Edmonton Works, Alberta, Can.

L. E. Andrews, Endicott Johnson Corp., Heel Factory, Johnson City, N. Y.

Vincent Plochocki, Alpha Portland Cement Co., LaSalle, Ill.

## Wire From Washington

—From page 30

The Bureau of Motor Carriers of the Interstate Commerce Commission announced that in a nationwide road check of interstate motor vehicles, 90 per cent of the vehicles checked violated one or more ICC safety requirements. The ICC also amended its Motor Carrier Safety Regulations with respect to safeguards against parts-failures in motor-vehicle braking systems.

The Food and Drug Administration reported some success in its campaign to shut off sales of "stay-awake" pills for truck drivers (see "Wire," December 1955). The FDA reported cooperation from trucking firms and unions in its campaign.

**Marine Safety.** The President has signed into law a series of bills, all previously discussed in

the "Wire," relating to marine safety: S. 460, concerning life preservers for river steamers, becomes Public Law 548; S. 743, relating to biennial inspection of hulls and boilers of cargo vessels, becomes Public Law 549; S. 1378, to clarify authority over navigation aids, becomes P. L. 550; S. 1791, requiring lights for motorboats, becomes P. L. 552, and H.R. 7952, authorizing inspection and certification of some 8,000 heretofore uninspected vessels carrying more than six persons for hire, becomes P. L. 519.

The Coast Guard announced, in connection with P. L. 519, that the inspections would not begin until next year.

**Home Safety.** Senate hearings were held on S. 3176, providing for mandatory poultry inspection (see "Wire," April 1956).

A special subcommittee of the House Interstate and Foreign Commerce Committee held hearings on H.R. 2181, to require safety closing devices on doors of household refrigerators shipped in interstate commerce. Earlier hearings in July 1955 had been recessed so that the industry and the National Bureau of Standards could work cooperatively to develop a set of criteria for satisfactory safety devices whereby a refrigerator could be opened from the inside by a small child.

The further hearing was to hear the progress reports. No technical solution has been found. The criteria have been prepared, but are still under consideration.

One of the main technical problems is the amount of force a small child can exert to open such a safety door. The Bureau of Standards, on the basis of a report from the Children's Bureau, set this figure at 10 lbs. The manufacturers urged a 22-lb. pressure.

Manufacturers stated their willingness to support financially further research to clarify this matter, and testified as to their cooperative program with the National Safety Council to make the public more aware of the problem as it related to abandoned refrigerators and to eliminate fatalities from that source.

The Bureau of Standards proposed research this summer by



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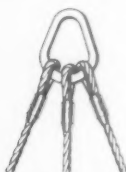
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qualified child research organizations, to see whether children aged two to five would and could use such safety devices in an emergency, and urged that adoption of final criteria for safety devices be deferred pending completion of such studies.

**Government.** Congresswoman Rogers urged that safety measures be enacted for arsenals and navy yards to protect against faulty munitions. Senators Carlson and Humphrey discussed on the Senate floor the nature of safety precautions in the hospital operations aspects of the Veterans Administration.

The Commissioner of Labor Statistics told the President's Occupational Safety Conference that the Federal government's 1954 accident injury rate was 7.7, as compared with an all-manufacturing average rate of 11.9 for 1954. The Commissioner declared that government agencies have lagged in establishing employee safety programs. But, "the Federal safety employee program is rolling now," the Treasury Department's Director of Administrative Services told the President's Conference.

**International.** According to a report of the International Labor Organization, there is a three per cent chance that a person will be killed in a work accident before reaching age 65 if he enters the construction industry in Europe at age 18.

The ILO also reported, after a world-wide survey of safety in coal mining, that coal mines are safer today than they were 25 years ago, but that the fall in frequency rates of accidents during this period has been slow compared to the considerable efforts made to reduce them.

Slim, a real old-timer in the cow country, arrived in the western town for the annual rodeo, all geared for a rip-roaring celebration. In no time, he met one of his pals, who said to him: "Welcome, Slim, welcome! What hotel are you stayin' at?"

"Hotel," snorted Slim. "Why, gosh all hemlock, I'm only gonna be here four days."

## Diary

—From page 26

whom he got his present job.

His program is one of the most colorful I've ever seen. He uses posters lavishly. His has an excellent and frequently changed display of safety equipment in the cafeteria. He has an elaborate set of departmental safety contests and a suggestion system that works. His safety page in the house organ is lively and readable and sound. It makes me blush when I compare it with some of my heavy-handed efforts in that line. He makes extensive use of good films, Safetygraphs, and other visual aids in his safety committee meetings and new employee classes.

I remember hearing him give a paper on maintaining employee interest at a National Safety Congress, and I know now that it was based on very real and practical application of the principles he uses effectively on the job.

Personally he appears to be liked by both management and the men.

But still, there it was. A spurt—then an end of progress. And it was up to me to find out why and see if anything could be done about it.

\* \* \*

The next Monday morning I went back to Lorman, and I put the question to him bluntly. "What happened? Why did the skyrocket fizzle out?"

He explained his theory at some length and very eloquently. He even produced a presentation he had presented to the executive committee on the subject, complete with charts and figures.

Stripped of the pictures and verbiage, it was the old theory of the irreducible minimum of human stupidity. The very success of the program made the approach to this irreducible minimum rapid, and made the leveling off inevitable. Meantime, by maintaining the program at its full vigor, he prevented a relapse, so that the great gains of the past were, year by year, returning to management and employees a fat dividend of saved money and health.

I tried to needle him where his complacency was fattest. I said,

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"So, having arrived at perfection, we must be content to rest."

He didn't needle. "No," he said, "not perfection. And certainly I don't rest. It takes more to hold the line at the low accident level of today than it did to make those big gains before '52. I'm not calous. I can hope as strongly as the next man that we will find new methods, both psychological and technological, that will permit further gains, but we can't expect miracles."

I got my clue from that remark, though I couldn't establish the point definitely right away. The reference to "psychological and technological" made me aware that, psychologically, Lorman's program was top-flight, and that it would be well to look into the engineering side of the problem. I went back into the files.

Lorman, back in '47 and '48 had done what any good safety man does on a new job. He'd made a good survey of the plant, an intelligent analysis of accident locations and causes. His memos of the period are full of specific hazards and ways to correct them.

But from '50 on there was a steady drop in engineering suggestions or comments, while the organizational and propaganda activity was intensified.

It took two more years to bring a halt to progress, even after Lorman had abdicated as engineer to concentrate on the human side of the problem.

It isn't quite fair to say that nothing was done engineering-wise. His previous campaign in this area had aroused interest in and increased knowledge of safety engineering principles, and progress was made, notably in material handling, after 1950. But the memos in the file indicated that Lorman had not initiated the improvement nor even played a large part in developing methods.

I went to Lorman then and talked to him like a Dutch uncle. "You're an engineer. You're supposed to be a good one. But you've let engineering slide in your enthusiasm for human relations."

He protested, giving a number of examples of constructive engineering work, but I pointed out that these were all ancient his-

tory, or else they were the kind of obvious things any cub could come up with.

Then he took a different tack, saying, "After all, we're not back in 1920. Most of the good that engineering can do has already been done. What remains is almost entirely a human problem, and my concentration on that side of the equation is correct."

I just looked at him. Finally I said, "I suppose that after every technological forward step, there

have been engineers who said, 'Now we've licked the problem. No more progress is possible.'"

I reached for the slide rule in its case that lay on a shelf behind his desk. I slid my finger across the leather, and there was a broad streak where my finger had pushed aside the dust.

Then I went home.

Today's dream from the Detroit auto makers: A transmission that will shift the blame.

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### **knife wound in the heart**



UNDER THE blazing blue sledge hammer of a Chicago heat wave, the cramped, makeshift operating room shimmered like an oven, reeking of ether and carbolic. Six sweat-drenched, frock-coated doctors huddled in fascination, watching deft hands reach into a human chest and expertly stitch up a wound in the redness of a pulsing heart.

Would he live? The surgeon mopped his brow and hoped. The year was 1893; the operation, fantastic.

Live? Yes, he would live for many more years, thanks to the skill and courage of Dr. Daniel Hale Williams.

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Sensitive and brave, Daniel Hale Williams was blessed with an abundance of the same urge to help his fellow man that binds and strengthens Americans today.

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# THE SAFETY LIBRARY



**Books, pamphlets and periodicals of interest to safety men**

**Compiled by Ruth Parks, Librarian, NSC**

## **Safety Management**

*Safety Management*, by Rollin H. Simmonds and John V. Grimaldi. Richard D. Irwin, Inc., Homewood, Ill., 1956. 555 pages, \$7.80.

THE AUTHORS in their preface recommend this book as a textbook for college level courses in accident prevention and safety administration, and it may be used by the practicing safety specialist to obtain new ideas in certain areas in addition to a general coverage of the basic principles of accident prevention.

Prominence is given to a recently developed method of estimating uninsured costs and the way in which these costs can be used in securing

management support for an adequate safety program. The book encourages increasing study and research in this phase of hidden costs.

*Safety Management* covers the conventional subject matter of industrial accident prevention and includes current popular materials such as preparation for control of catastrophies, atomic attack, floods, sabotage, and the like. Interest of management will be aroused by sections on sewage disposal, atmospheric pollution and radioactive wastes. A portion is devoted to the consideration manufacturers should give before marketing new products. The policy of "buyer beware" has now become "seller beware" accord-

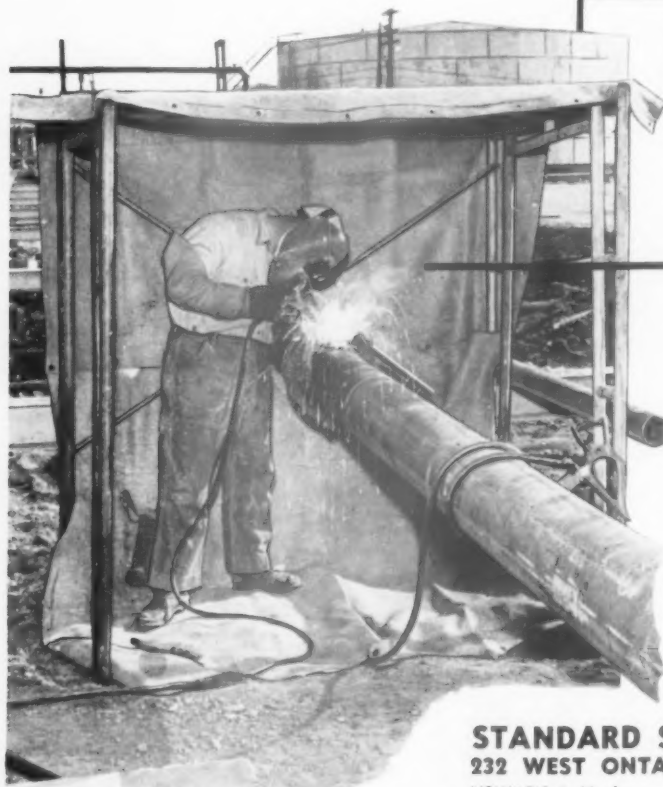
ing to the observations of the authors.

Chapters dealing with employee selection, counseling, absenteeism, employee training, and experiences with handicapped workers should be helpful to industrial relations and personnel directors as well as to safety men. The discussion of automation is introduced in the hope that it will be an aid to the safety specialist if he is called upon to evaluate plant operations preparatory to managements deciding on the use or extension of automation.

In their discussion of the qualifications for a safety director, the authors feel that a knowledge of business administration among other things would be of advantage when he is dealing with his superiors. He should be able to "talk the language of an accountant."

When analyzing the over-all accident prevention responsibilities of the various segments of an organization the book includes the accounting, purchasing, research, and control divisions, in addition to the oft finger-pointed - at supervisor, employee, and union.

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author "fire prevention has a literature of its own." Minimum essentials, however, are given.

Questions to be used in review and cases for analysis and solution are given at the ends of chapters.

The authors have discussed numerous debatable items that arise whenever several members of the accident prevention fraternity gather. Examples are: Is the four to one ratio correct today? Should we call them "indirect costs?" Is a severity figure a good measuring stick to judge performance? Should we call it thoughtlessness rather than carelessness? Does a program on off-the-job safety pay dividends?

The appendices list common industrial hazards, a brief discussion of their occurrences and properties, and properties of selected flammable materials.

GRANT O. SHIBLEY

## BOOKS AND PAMPHLETS

### Aeronautics

*Safety Through Steep Gradient Aircraft.* Supplement to 1955 Survey Reviewing Status and Special Problems of Vertical (VTOL) and Short (STOL) Take-off and Landing Types of Aircraft. R. M. Woodham, Cornell-Guggenheim Aviation



"Had a nice trip. We were struck by the beauty of the West Virginia Hills, and just outside of Clarksburg by a truck."

Safety Center, 468 Fourth Ave., New York 16, 1956, 43 p., 75c.

### Community Safety

*Next to Creating a Life, the Greatest Thing Man Can Do Is to Save a Life.* Republic Steel Corp., Republic Bldg., Cleveland, Ohio, 1956, 28 p.

Four talks given at the Community Safety Session at the President's Conference on Occupational Safety, May 1956.

## Fire Protection

*Fire Effects and Fire Control in Nitrocellulose Photographic - Film Storage.* J. V. Ryan and others, National Bureau of Standards, 1956, 20 p., 20c. Building Materials and Structures Report 145, Superintendent of Documents, Washington 25.

## Health

*20th Annual Meeting, November 1955.* Industrial Hygiene Foundation, 4400 Fifth Ave., Pittsburgh 13, Pa., 1956, 274 p. *Transaction Bulletin* No. 19. \$5.00.

## Mines

*Analysis of 346 Accidents, Underground Iron-Ore Mines, Lake Superior District.* U. S. Bureau of Mines, Publications Distribution Section, 4800 Forbes St., Pittsburgh 13, Pa., 1956, 15 p. Information Circular 7744. Free.

*Anchorage Testing of Mine-Roof Bolts Part 2. Expansion-Type 3/4-in. Bolts.* U. S. Bureau of Mines, Publication Distribution Section, 4800 Forbes St., Pittsburgh 13, Pa., 1956, 19 p. Report of Investigation 5194. Free.

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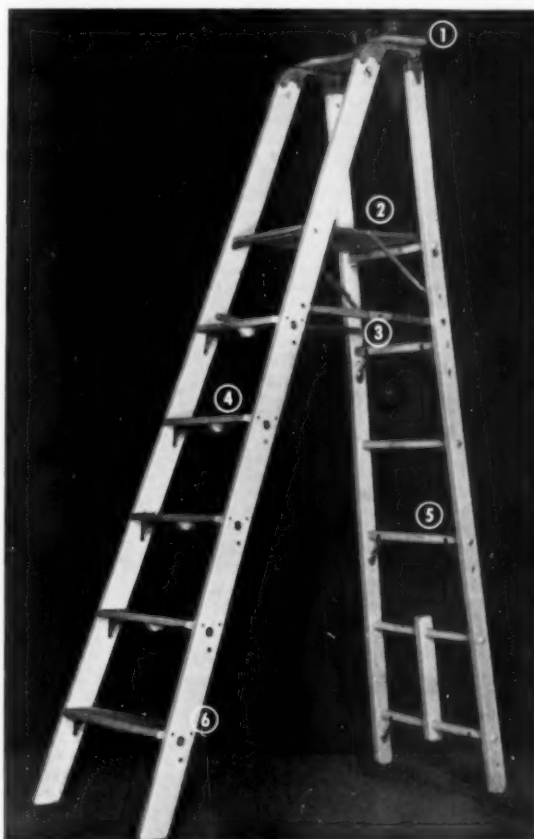
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uary 31, 1956. U. S. Bureau of Mines, Publications Distribution Section, 4800 Forbes St., Pittsburgh 13, Pa., 1956, 25 p. Information Circular 7741. Free.

*Fire and Explosion Hazards in Thermal Coal-Drying Plants.* U. S. Bureau of Mines, Publications Distribution Section, 4800 Forbes St., Pittsburgh 13, Pa., 1956, 20 p. Report of Investigation 5198. Free.

*Permissible Mine-Loading Equipment.* U. S. Bureau of Mines, Publications Distribution Section, 4800

Forbes St., Pittsburgh 13, Pa., 1956, 33p. Information Circular 7736. Free.

*Survey of Dust-Control Practices in the Coal-Mining Industry.* U. S. Bureau of Mines, Publications Distribution Section, 4800 Forbes St., Pittsburgh 13, Pa., 1956, 49 p. Information Circular 7733. Free.

#### Standards

*Machine Tool Electrical Standards.* Revised 1956. National Tool Builders' Association, 2071 East 102nd St., Cleveland 6, Ohio, 1956, 38 p.

## MAGAZINE ARTICLES

### Chemicals

"Sulphur Dioxide Exposure and Control." Benjamin Feiner and Sidney Marlow, *Paper Industry*. Apr. 1956, p. 37-40.

"Why Ground?" O. K. Coleman, *Electrical Engineering*. May 1956, p. 420-424.

### Engineers—Safety

"Men—Not Machines—Main Cause of Industrial Accidents." W. Schweisheimer, *Paper Industry*. May 1956, p. 129-130+.

### Fire Protection

"Fire Fighters Prevent Disaster When Power Shovel Ruptures Gasoline and Sewer Lines." *Fire Engineering*. May 1956, p. 408-409.

"Industrial Fire Protection. Growth of Size of Plants Turns Spotlight on Adequacy." *Fire Engineering*. May 1956, p. 396-399+.

### Foundries

"The Noise Problem in Foundries." American Foundrymen's Society, Des Plaines, Ill. Reprint from *Modern Castings*, March 1956, p. 38-51.

### Handling Material

"Making Eye-Bolt Lifts 100 Per Cent Safe." M. F. Biancardi and C. M. Gillespie, *Factory Management and Maintenance*. May 1956, p. 118-119.

### Health

"Safe Handling of Toxic Materials by the Pest Control Operator." Warren A. Cook, *Industrial Medicine and Surgery*. May 1956, p. 205-212.

### Hospitals

"At St. Joseph Hospital . . . Safety Is Everybody's Business." Sister M. Theophane, *Hospitals*. May 16, 1956, p. 44-46.

"In Hospitals as in Industry . . . Safety Begins at the Top." David L. Arm, *Hospitals*. May 16, 1956, p. 47+.

"Our Safety Program Paid a \$45,000 Dividend." William K. Klein, *Hospitals*. May 16, 1956, p. 48-49.

"Spelling Out a Pattern for Safety—ABC—At the State Level—At the Local Level." *Hospitals*. May 16, 1956, p. 53-57.

"Solving Patient and Visitor Safety Problems." John Morris, *Hospitals*. May 16, 1956, p. 50-52.

"We Built in Safety to Insure a Healthy Safe Working Area for Our Food Service Employees." Esther Ratliff, *Hospitals*. May 16, 1956, p. 70-72.

"Work Injuries to Hospital Em-

## VI-LAN CLEAN

### dispensers

on the job and in wash rooms will "inhibit" the menace of

## dermatitis

... lost man hours  
and lost profits!

This new antiseptic all-purpose skin cleanser contains ACTAMER, a non-toxic bacteriostat, perfected by Monsanto Chemical Company, exerting a powerful inhibitory action against harmful skin bacteria for 48 hours after use.

VI-LAN CLEAN does what ordinary soaps can not do. It removes greases, oils, paint, acids, graphites, printing inks, asphalt, rubber, gasket cements and other industrial soils and sediments, and provides the prophylaxis inhibiting the germs which too often put employees out of commission.

So, serve and protect your employees with VI-LAN CLEAN—install the new VI-LAN CLEAN dispensers in every wash room and on critical on-the-job locations. MAY BE USED WITH OR WITHOUT WATER.

To fill dispensers VI-LAN CLEAN is packed in polyethylene bags, allowing you to release any amount of the cream simply by finger pressure on the bag without waste. This container also may be used conveniently as a portable dispenser on trucks and outside jobs.

Also available in convenient pint, quart and gallon containers for home and shop use.

Write for descriptive folder today!

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Louisville 3, Kentucky



ployees. Ewan Clague, *Hospitals*. May 16, 1956, p. 37-43.

#### Magnesium

"These Rules Will Show You How to Use Magnesium Safely." *Factory Management and Maintenance*, May 1956, p. 84-86.

#### Mines

"Ventilating Units Provide More Safety, Comfort for Equipment Operators." G. G. Schukneck, *Engineering and Mining Journal*. May 1956, p. 92-95.

#### Noise

"Kimberly-Clark's Noise Control Program." Marion L. Briggs, *Paper Industry*. Apr. 1956, p. 40-41.

#### Psychology

"Accidents Start Inside a Man." *Supervisory Management*. May 1956, p. 44-47.

#### Radiation

"Radiological Health or Radiation Protection." Miriam Sachs and Richard Sullivan, *American Journal of Public Health*. May 1956, p. 575-580.

#### Water Works

"Accident Reduction by New York Water Department." William E. Vincent, *Water Works Engineering*. May 1956, p. 449+.

## States and Safety

—From page 19

educational programs. This is again in the hope that enough people will be interested to avail themselves of this type of education. There are those who argue that the educational approach is the only method.

The third and, it seems to me, the proper approach is a well-coordinated program of inspection services and code enforcement together with well designed educational programs related to work habits and the engineering phases of industrial safety.

\* \* \*

Government must exercise leadership primarily at the state level as a middle man but with such authority as is necessary to invoke a maximum of cooperation between all parties. In Washington, to bring all of the forces together, to cement our efforts in a spirit of cooperation, seven years

ago we called the First Annual Governor's Industrial Safety Conference. At the first conference there were 270 delegates. At the most recent one, which we just held, there were more than 1,000 in attendance.

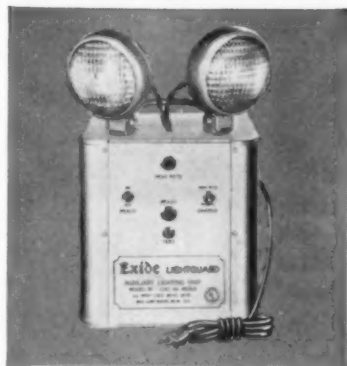
For seven years this annual forum has met to share and apply the best thinking in the state in a program aimed at saving lives in logging camps, factories, mines, and in every place where men and

women are exposed to danger during their working hours. We talked frankly with each other and began to face up to some of the real problems in our industrial plants.

Special industry-wide conferences and local safety conferences have been an out-growth of these statewide meetings. At such meetings there has been equal representation from management and labor and this circumstance,

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Darkness invites trouble. When lights go out, Exide Lightguards go on instantly and automatically . . . protect against injury, panic, looting and other perils that breed in the dark.

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18

alone, has brought lasting and worthwhile results.

We believe that our partnership approach to safety—between labor and management, and with government as a fair umpire—has paid off. Organized labor is glad to accept it, as proven by the closing remarks of Henry Conover, speaking for labor at our State Conference on April 9, 1956, when he said,

"We will continue to work with the Division of Safety and the

employers of our members in a determined effort to make all industries of Washington truly safe places in which to work."

The enthusiasm of the leaders of organized labor as well as of industry has made safety in our industrial plants a primary topic of conversation in any industrial discussion where businessmen, labor men and public officials gather. They speak as of one tongue.

What has happened during

these seven years? We know we have made significant advances in our attack against industrial accidents. We know that hundreds of men and women are alive today because concerned leaders of labor and management have engaged every possible educational and engineering technique to reduce the hazards which threaten when people work around power machinery, heavy loads, explosives, boiling liquids, scaffolding, dangerous chemicals.

For several years now, our accident and fatality rates have been on the decline. By comparing the fatality toll of the past seven years with the fatality figures of 210 in 1948, we find the following encouraging figures which I shall express in terms of lives saved. There were 76 fewer fatalities in 1949; 46 less in 1950; 46 less in 1951; 84 less in 1952; 85 lives saved in 1953; 108 saved in 1954; and 73 fewer fatalities in 1955.

We see by this comparison that 518 Washington workmen are alive today who would have been killed had the 1948 rate persisted. And this is a conservative figure because it does not take into account the fact that during this period the number of workman hours of exposure increased by 126 million hours.

One way in which this significant improvement is reflected is in the fact that in the past three years, industrial insurance premiums have been reduced in 58 industrial classes, and medical aid rates have come down in 77 classes. A few of the principal industries in which accident prevention has brought outstanding results are in the pulp and paper industry, in heavy construction, home building, plumbing and heating plant installation. Similar results have been achieved in structural steel erection, intrastate telephone systems, in sash and door, veneer and plywood manufacturing, and in steel mills and foundries.

One of the most outstanding improvements has come about in the extra-hazardous logging industry. For the first time in many years this industry has received a reduction in insurance rates . . . and its industrial insurance fund, after



## SAFETY HAT. . CAP with full floating HEADGEAR . . . adjustable sizes 6½ to 8

Molded, from a flame retardant, waterproof material in seven different brilliant, permanent colors—red, yellow, blue, white, grey, green, brown—"SUPERGARD" exceeds all Government Specs. for impact, penetration, electrical resistance, flammability, etc. . . . In the various adjustments, each change is positive and secure. Cool and well ventilated, for wearing in the sun—"SUPERGARD" is also supplied with a half-liner for frosty weather and a full-liner for frigid temperatures. There is no metal of any kind in its construction.

Easily sterilized, there is nothing that need be replaced in "SUPERGARD," when it is reissued, but the wrinkle free sweatband which comes in leather or leatherette . . . "SUPERGARD" is also available with goggles; faceshield; welding helmet . . . Send for completely descriptive catalog page and prices.

**The BOYER-CAMPBELL Company**  
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operating many years in the red, now appears with a black balance.

Another reflection of the continuing decline in accidents is that in spite of a 65 per cent increase in individual compensation and pension payments since 1948, the insurance fund has more than doubled, and the medical aid fund has increased by 600 per cent. The availability of \$89 million in the funds administered by our State Department of Labor and Industries means that every injured workman, every widow and child of a workman killed on the job, has the assurance of an income.

We know that the inspiration and encouragement provided at our annual safety conference have been a vital factor in the on-the-job cooperation which has saved so many lives. Actually, the remarkable gains which have been made in the industrial plants of our state have made it easier to build a united front against human carelessness of all kinds—whether in our homes, in our industries, or on our highways.

The gains, moreover, are not only economic and human. Wherever we find a representative of an industry sitting down with its employees to think and talk together in terms of human values in their own relationships, we find a new spirit of cooperation developing which strengthens the whole fabric of our citizenry.

## COMING EVENTS



*in the  
safety field*

**Sept. 13-14, York Harbor, Me.**

Twenty-ninth Annual Maine State Safety Conference (Marshall House). Arthur F. Minchin, secretary, Department of Labor and Industry, State House, Augusta, Me.

**Sept. 17-19, Cleveland, Ohio.**

Eighteenth Annual Ohio State Safety Conference and Exhibit (Hotel Carter). H. G. Hayes, secretary-

treasurer, Suite 514, 2073 East Ninth St., Cleveland 15, Ohio.

**Oct. 22-26, Chicago**

Forty-fourth National Safety Congress and Exposition (Conrad Hilton Hotel). R. L. Forney, secretary, National Safety Council, 425 N. Michigan Ave., Chicago 11.

**Nov. 8-9, Columbia, S.C.**

Nineteenth Annual Accident-Prevention Conference (Hotel Jefferson). J. D. Watson, Jr., safety engineer, South Carolina Industrial

Commission, P. O. Box 539, Columbia, S. C.

**Dec. 10-11, New Orleans**


Louisiana Safety Association Conference (Roosevelt Hotel). Charles E. Doerler, secretary, Louisiana Safety Association, P.O. Box 1148, Shreveport, La.

**Mar. 19-20, Fort Wayne, Ind.**

Northeastern Indiana Safety Conference and Exposition. Ivan A. Martin, manager, safety council, Chamber of Commerce, Fort Wayne.

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## Safety Congress

—From page 27

session will include three talks on presses and one on forging. Charles H. Smith, president, Steel Improvement & Forge Co., Cleveland, Ohio, will speak on "Producing With Safety in Forging Operations." A plant medical director will give his impression of the value of a safety engineer in

press shops. He is Dr. Arthur C. Hansen, of the A. O. Smith Corp., Milwaukee.

The other two topics will be "Power Press Mechanization With Safety" and "Safety Guards and Gadgets for Punch Presses."

**Joint Session.** The Power Press and Forging and the Automotive and Machine Shop Sections will hold a joint session on Thursday afternoon. Talks will cover the

following subjects: safety education, machining metal, problems in metal working shops, and electrical controls and resistors.

**Textile Section.** Two women are among the speakers scheduled for this year's program. Miss Annette Duchein, vice-president, Spartan Mills, Spartanburg, N. C., will speak Monday on "Management Direction and Support." Addressing the delegates Tuesday afternoon will be Mrs. Ida Ayers, Industrial Relations Department, Collins & Aikman Corp., Norwood, N. C., whose subject will be "Effective Education and Medical Control."

Other speakers and their talks will include W. R. Garth, manager, Pacolet Manufacturing Co., Gainesville, Ga. — "Organization For Action At Unit Level; C. B. Sassomon, overseer, North American Rayon Corp., Elizabethton, Tenn. — "Department Organization and Control of Hazards," and Dwight Frye, personnel manager, Mayfair Mills, Spartanburg, S. C. — "How Personnel Management Influences the Entire Program."

**The Exposition.** A total of 247 exhibits will be displayed at the 44th Congress. An innovation this year will be "Traffic Row," a grouping of booths featuring products of traffic safety manufacturers. Previously these exhibits were scattered throughout the exhibition space. Look for this new improvement on the second floor, booths 212-220.

**Hotel reservations.** Those who have not already done so are urged to send hotel reservations as soon as possible. Registration forms are available from the Housing Bureau, National Safety Council, 425 North Michigan Ave., Chicago.

The number of times the average man says "No" to temptation is once weakly.

"I'm trying to get my wife to run for congress."

"Why?"

"Because she sure knows how to introduce bills into the house."

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## Eyebolts

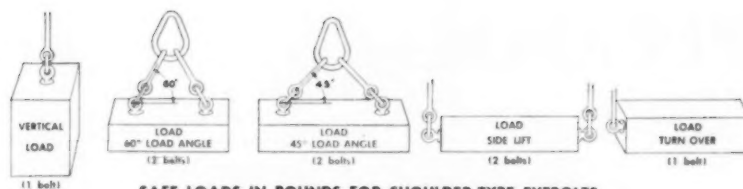
—From page 72

size eyebolt on straight and angle pulls was determined by detailed analytical mechanical studies by Charles N. Gillespie under Safety Services Section supervision.



THE NEW (left) and the old.

These findings were later confirmed by physical tests in Allis-Chalmers research laboratories. From this research a formula was developed mathematically and a table of safe loads in pounds for



SAFE LOADS IN POUNDS FOR SHOULDER-TYPE EYEBOLTS

Size (Inches)	Vertical (1 bolt)	60° Load Angle (2 bolts)	45° Load Angle (2 bolts)	Side Lift (2 bolts)	Turn Over (1 bolt)
1/4	270	94	60	70	70
5/16	1,260	400	260	280	280
3/8	3,020	850	520	580	580
1	5,520	1,640	1,030	1,180	1,180
1 1/4	8,890	2,580	1,610	1,820	1,820
1 1/2	12,900	3,680	2,300	2,560	2,560
2	23,000	6,620	4,160	4,600	4,600
2 1/2	37,200	11,840	7,480	8,520	8,520

shoulder-type eyebolts established (see accompanying chart).

A color code providing for a change in color each year was set up and the head and shoulder of all eyebolts issued during a particular year are painted to correspond to that year's color. This was done to simplify the removal of eyebolts, on a periodic basis, should experience show it to be necessary after a period of years. It was found that painting is fast-

er and stands up better than stamping as a means of identification.

To date, experience with the new type eyebolt has been good.

"I hear you've signed up as skipper on the good ship matrimony."

"No, my wife is the skipper. I'm the second mate. I married a widow."

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→ Safety and performance are yours in the many practical, diversified uses for Miller Swivels because they are PRECISION BUILT. A wide range of 16 different stock styles with capacities from 700 lbs. to 250 ton. Special adaptations designed on request.



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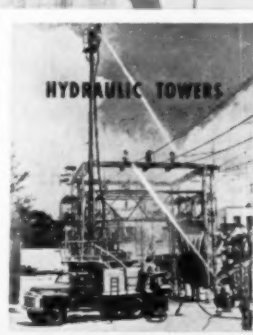
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# PERSONALS

News of people in safety  
and related activities

## John A. Neale Elected President of NFPA

JOHN A. NEALE was elected president of the National Fire Protection Association at the



John A. Neale

NFPA's 60th Annual Meeting at the Hotel Statler in Boston.

Mr. Neale is chief engineer of the National Board of Fire Underwriters, New York. He joined the NBFU in 1950 and before that he was associated with the Chicago Board of Underwriters and later the Underwriters' Laboratories, Inc. He is a resident of Summit, N. J.

He is a past president of the Society of Fire Protection Engineers. He has been active in the NFPA for over 32 years and has served as an officer and director for the past 10 years.

Also elected to NFPA offices for the coming year were: 1st vice-president, Chief Henry G. Thomas, Hartford (Conn.) Fire Department; and 2nd vice-president, Loren S. Bush, chief engineer, Board of Fire Underwriters of the Pacific, San Francisco.

Richard E. Vernor, manager, Fire Prevention Department, Western Actuarial Bureau, Chicago, was re-elected chairman of the Board of Directors, and Hovey

## Got No Distinction

The trouble with people these days is they have no originality. There are just too many plain characters around no one would ever consider taking a picture of, with glass in hand. And, every generation seems to get more common. Even when you goof, there's a certain charm in doing it in a distinctive manner.

Take getting knocked off in an accident, for example.

We pride ourselves on our ingenuity—on being loaded with go-go-go, initiative, savoir faire, and on being leaders in developing new and history-making fields. But, why should we be so bourgeois when it comes to getting mangled?

A guy falls on his can, off a ladder—trips over something on the floor—sticks his fingers in moving machinery—lets something get blasted in his eye—accordion pleats a toe by dropping something on it—kinks his back forgetting how to lift—doesn't slow down at intersections—doesn't read directions on labels—etc., etc., etc.

How ordinary can you get?

Many self-respecting spirits must have fits every time Bridey calls them up, at the mediocre ways some are put in stir. Not a spit of imagination in a carload of corpses.

With all the hullabaloo we have directed at us daily, by corps of high-priced publicity men vying for our attention in magazines, newspapers, radio, and TV—on billboards, streetcars and busses—you'd think some joker could come up with an original idea for his "Operation Hospital Bait."

If you're gonna fracture yourself—or your loved ones—give it a little finesse. Don't be a bum all your numbered days.

ROBERT D. GIDEL

T. Freeman, president, Manufacturers Mutual Fire Insurance Company, Providence, was re-elected NFPA secretary-treasurer.

Charles H. Bunn, Jr., of Esso Research and Engineering Company, Linden, N. J. and L. R. Sanford, president, Shipbuilders Council of America, New York, were each elected to three-year terms as members of the NFPA Board of Directors.

Re-elected to three year terms on the Board of Directors were: A. Leslie Ham, manager, Dominion Board of Insurance Underwriters, Montreal; George J. Richardson, secretary-treasurer, International Association of Fire Fighters, Washington; and Udell C. Young, vice-president, General Foods Corporation, White Plains.

GEORGE H. REILLY, general supervisor of safety, Lorain (Ohio) Works, National Tube Division, has been appointed assistant manager of industrial relations at National Tube's Fairless Works.

A native of Lorain, Mr. Reilly has been a leader in civic and

welfare activities, as well as in the organization and promotion of industrial safety at local, state and national levels.

Mr. Reilly began his service with United States Steel Corporation in 1934, when he was employed as a student management trainee at Ellwood Works in Pennsylvania. In 1936, he was appointed foreman of the conditioning dept., and two years later, was promoted to general foreman of the bar mill, the position he held prior to his transfer in 1947 to Lorain Works as head of the plant's safety organization.

Since coming to Lorain, Mr. Reilly's service has been notable for outstanding plant safety achievement, including five Awards of Honor, highest recognition by the National Safety Council; one Safety Council Award of Merit; and six awards from the Industrial Commission of Ohio. Last year, Lorain Works compiled an injury-free span of 85 days and more than five million man-hours to establish a new U. S. Steel record for integrated steel plants.

Mr. Reilly was graduated from

Lorain High School in 1928 before studying science and law at the University of Notre Dame, where he received his degree in 1933. He has also attended the University of Pittsburgh Graduate School of Industry.

Active in state and national safety organizations, Mr. Reilly is vice-president for industry of the Ohio State Safety Council and assisted in the development of the present Ohio Safety Codes. He has also served as president of the Lorain Safety Council and chairman of the Lorain County Industrial Safety Council. At present, he is chairman of the Lorain Chapter of the Red Cross, a member of the Society of Ohio Safety Engineers, the American Society of Safety Engineers, the Lorain Chamber of Commerce, Town and Cotillion Clubs, and the Notre Dame Cleveland Club.

#### H. W. Heinrich Elected To New Position

HERBERT W. HEINRICH has been elected chairman of the Uniform Boiler and Pressure Vessel Laws Society, Inc. He assumed his new post June 1, succeeding William Ferguson who retired after serving in this office for 10 years.

The Society is a non-profit association concerned with the safe design, construction, installation and inspection of steam boilers and pressure vessels in the United States and Canada. Established in 1915 to foster the legal adoption of the Boiler and Pressure Vessel Code of the American Society of Mechanical Engineers and to promote uniformity in the boiler and pressure vessel regulations, the organization has recently completed working arrangements with all important industrial nations on every continent to accept boilers and pressure vessels built in accordance with the A.S.M.E. codes.

Mr. Heinrich is internationally recognized as a safety engineer. He was awarded the medal of the Conservatoire National des Arts et Metiers in Paris in 1952. A member of a special committee sent to Europe in 1945 by Under Secretary of War Patterson to establish a program controlling injuries from mines and dud explosives, he was also chairman of



Over one thousand in daily service.

*Control Dust*

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## RUEMELIN TUBULAR TYPE FILTER

A Ruemelin Tubular Type Cloth Filter is the modern way to handle industrial dusts created in foundry cleaning rooms, metal working plants, cement mills and many other applications. The simplicity of Ruemelin Dust Filter design means low operating and maintenance costs. Definite power savings are assured by lower resistance to air flow.

#### NEW DUST FILTER BULLETIN AVAILABLE

Write for our new Bulletin No. 24-D just released. Learn for yourself the advantages you secure with a Ruemelin Bag Filter and at no extra cost.

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**NEW!**  
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A specific cleaning replacement for  
CARBON TETRACHLORIDE

Out and out metal dry cleaning solvent and degreaser for all types of electric motors, instruments, electronic equipment. Ready to use "Handy Kit," containing Patented dip and drier basket.



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#### A LOWER TOXICITY SOLVENT.

- Quick Cutting solvent against stubborn dirt and grease.
- Non-Explosive... Safe... Comfortable to work with.
- Non-Corrosive to metals. Fast, clean evaporation.
- Non-Ionic... Hi-Dielectric... a specific for cleaning electrical components.

Much faster cutting than "Carbon Tet" . . . Causes no rusting . . . Leaves no film.

also in economical 55 gal. size drum



GUNK CHICAGO CO.

CHICAGO 38



the Safety Advisory Committee to the War Department and of the War Department Safety Council. He is presently a member of the President's Conference on Occupational Safety.

Before being elected chairman of the Society, Mr. Heinrich had served The Travelers Insurance Companies for 43 years, retiring last April 30 as superintendent of the engineering and loss control division. He authored numerous books on industrial safety, includ-

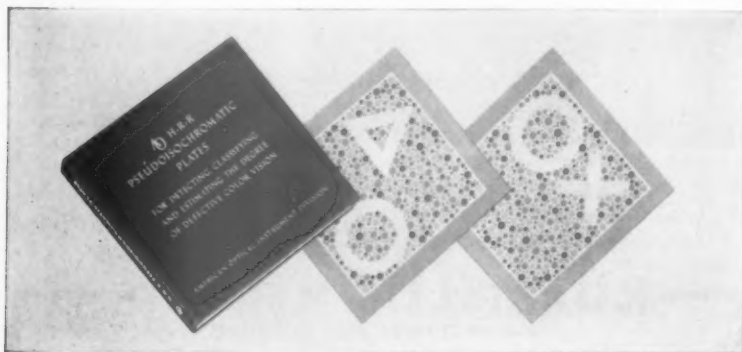
ing *The Supervisor's Safety Manual*, *Basics of Supervision*, *Formula for Supervision*, and *Industrial Accident Prevention* which is used as the standard text in 26 universities.

J. D. HOLTZAPPLE has been appointed director of safety for Blaw-Knox Company, Pittsburgh, it was announced by Howard M. Winterson, director of industrial relations for the company.

Mr. Holtzapple was director of training and safety for the Continental Foundry & Machine Com-



J. D. Holtzapple



## Completely New

## AO H-R-R COLOR BLINDNESS TEST

Most Accurate and Comprehensive Low-Cost Test Ever Developed

The New AO Hardy-Rand-Rittler color test answers a long felt need for an easy-to-give, comprehensive, low cost color blindness test. It is the result of more than ten years of scientific investigation, production and validation by eminent optical authorities.

It offers a simple way to insure job efficiency and prevent costly errors by rapid testing of workers whose jobs demand the ability to distinguish certain colors.

The test not only detects people who have Red-Green and/or Blue-Yellow color blindness but also types the deficiency and estimates

the degree of defective color vision present.

To make color testing easy the new test has been designed for the utmost simplicity of administration. For the vast majority of people it is completed in seconds. Simple, detailed instructions and understandable scoring sheets are part of the test. The recognition symbols used . . . the circle, triangle and cross are universally understood and the ingenious pattern of the plates allows no clues for memorization.

AO offices are located in nearly 300 major cities, or write

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City..... State.....

pany, purchased by Blaw-Knox in 1955.

A native of Chicago, Mr. Holtzapple was graduated from Indiana University in 1932 with the degree of bachelor of science in business administration. He joined Continental in 1942 as director of training for the company's Chicago Works.

Mr. Holtzapple is second vice-chairman of the Metals Section of the National Safety Council and a member of the Safety Committee of the American Foundrymen's Society.

### J. L. Risinger Retires

JOE L. RISINGER, in charge of safety at Socony Mobil Oil Company, Inc., retired June 1 after serving the company 37 years. He began his career in the boiler shop of the Beaumont, Tex., refinery of Magnolia Petroleum Company, the Southwest affiliate of Socony Mobil. Mr. Risinger is the inventor of an agitation method of extinguishment or control of oil tank fires, now in world-wide use.

Mr. Risinger was instrumental in starting safety and fire protection at Beaumont Refinery as

early as 1921; and in 1932 was made manager of accident and fire protection department for Magnolia Pipeline Company, Dallas.

In 1939 Mr. Risinger came to the New York headquarters office of Socony Mobil as safety supervisor. Since that time he has been involved constantly in research on fire protection, method, equipment and procedures. During the past 10 years, in charge of safety at Socony Mobil, Mr. Risinger has organized safety programs and has taught his fire protection techniques on five continents. Although he has done much research and has contributed much on fire prevention, control and extinguishment, he has been more interested in the prevention of injury to people.

During World War II Mr. Risinger trained Army, Navy, Air Force and Civilian Defense personnel in combating incendiary bombs, in the safe handling of petroleum products, and fire protection in general. He is the author of several pamphlets on these subjects as well as a safety book widely adopted as a basal textbook for the classroom.

Mr. Risinger has been a director of the National Safety Council, chairman of the Petroleum Section of the National Safety Council, and chairman of the central committee on accident prevention of the American Petroleum Institute. He also has been chairman of many other committees in the oil and other industries.

In his spare time Mr. Risinger enjoys playing with fires—building them, studying how they burn and building demonstration equipment that shows how best to control them. The agitation method of extinguishment or control of oil tank fires occurred to him during experiments in which small incendiaries, when dropped into containers of oil, burned under the oil but did no further harm. Mr. Risinger noticed that if the oil were reignited, the agitation, caused by the incendiary bomb, put out the fire.

After retirement Mr. Risinger plans to make himself available to industry as a consultant on safety and fire protection.

## Obituary

### L. R. FLECK

LEVAN R. FLECK, manager of safety for Ethyl Corporation, died May 12 at the Wallingford Inn, Wallingford, Vt., while attending a meeting of Ethyl Corporation safety engineers there.

Mr. Fleck, a native of Altoona, Pa., was born March 23, 1910. He attended Altoona public schools and graduated from the Univer-

sity of Pittsburgh in 1932 with a bachelor's degree in mechanical science. He joined Ethyl Corporation in 1937 as a field representative in the company's Baltimore division. The next year he received his first safety assignment, also in the Baltimore area, and the following year was assigned to full-time safety work in Dallas. In 1940, he was transferred to Tulsa as chief safety engineer.

During World War II he served in the U. S. Army for five years, attaining the rank of major. He



"Look! It soaks up grease just like a sponge."

**L**AN-O-KLEEN removes 95% of all dirt and grime encountered in industry.

Easily — and safely!

**L**AN-O-KLEEN helps to protect the skin as it cleans. WEST—in pioneering the development of "double action" industrial cleaners—was the first to impregnate beneficial amounts of free lanolin into a corn meal type hand cleaner.

**L**AN-O-KLEEN is economical to use. It bulks greater than most other hand cleaners—therefore goes farther per pound. Too, the sturdy LAN-O-KLEEN dispenser rations just the

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**L**AN-O-KLEEN is one of a group of WEST products formulated for the prevention and control of industrial dermatitis. Workers' hands are their most valuable tools. By helping to prevent dermatitis, you can help keep costs down — by keeping workers on the job at maximum efficiency.

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**NEW Base** — 12" pedestal with adjustable clamp clip to hold arm.

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**NEW Finish** — Semi-gloss, Vista Green baked enamel. Reflector interior, high temperature white.

participated in campaigns from Normandy to the Elbe River with an anti-aircraft artillery unit, and received the Bronze Star decoration at the time of the Rhine River crossing.

Soon after his return from army service in 1946, he was transferred to the safety department of Ethyl's New York office. He was named assistant safety manager in 1950, and manager of safety in 1952.

He is survived by his widow, Marjorie, White Plains, N. Y., and parents, Mr. and Mrs. James R. Fleck, Altoona, Pa.

He was a member of the American Industrial Hygiene Association, and the American Petroleum Institute, division of refining.

Funeral services were held May 14 at the Dutch Reform Church in Bronxville, N. Y. Interment was in Rose Hill Cemetery, Altoona.

### Fraud Fires Fewer When Business Is Good

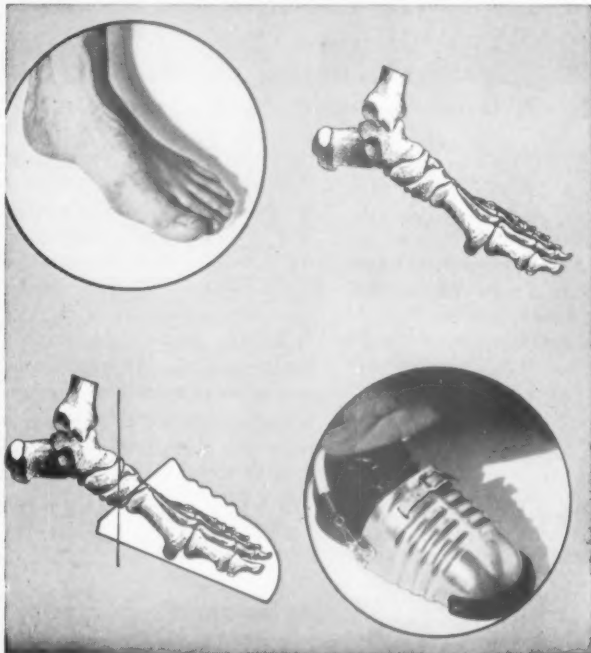
THE NUMBER of fraud fires has "diminished considerably since World War II, apparently due to good business conditions and scarcity of certain materials."

Speaking before a meeting of local, state and provincial fire marshals from Canada and the United States, a top arson investigator said also that "fraud fires and the economic trend go hand-in-hand."

First Sgt. Lawrence L. Priar of the Bureau of Fire Protection, Pennsylvania State Police, this morning addressed the Fire Marshals' conference being held in conjunction with the 60th annual meeting of the National Fire Protection association at the Hotel Statler.

He warned that the future could bring a recession. "If it does," he said, "we can expect that fraud fires will again become in evidence."

"One successful fraud fire is sure to create others," Sgt. Priar told the fire marshals. And our only hope to stop them, he said, is to instill in the fraud fire setter "the fear of a relentless, efficient, and fearless investigation and prosecution."



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Why not protect all of them with SANKEY foot guards.

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## Testing For Safety

—From page 23

loaded solenoid shorting bar is placed across the terminals of the high voltage capacitor, thereby insuring that when the access doors are opened the capacitor remains shorted. A device of this type is pictured in Figure 2.

**Personnel Indoctrination.** Mechanical guarding is only part of the answer to the problem of proper personnel protection. Another phase of the solution requires that adequate time be taken to indoctrinate operators in the proper test methods. Our indoctrination takes the following form:

1. Written procedures are supplied for each specific component tested. The procedure outlines the hazards involved and the precautions to be taken.

2. New operators of high-voltage test equipment are first trained by engineers or by highly-skilled technicians. After a suitable period, the supervisor must certify that the employee has the knowledge and ability to handle the unit. Only after this certification is made, is the operator permitted to handle the unit alone.

3. Employees are not permitted to work alone in high-voltage test areas. Whenever overtime is necessary, a minimum of two employees is required to be in the test area.

4. All employees and supervisors are trained in the latest techniques of resuscitation. Refresher courses are given periodically.

### Pneumatic Hazards

Because of the demands placed upon our products by high altitudes and tremendous speeds, more advanced testing methods had to be developed. These methods have taken the form of static and dynamic pneumatic systems developing pressures of 5,000 psi. This poses a very serious problem in personnel protection in the event of compressor, reservoir, or component failure.

The compressors and reservoir tanks have been housed in a building similar to those used for ammunition storage. This building is mounted on a concrete apron 10 inches thick. The inner and outer walls consist of 2 x 6-in. tongue-and-groove boards. Be-

tween these walls is a 12-in. space completely filled with sand. The door is made of 2 x 6-in. tongue-and-groove boards, covered on the inside by steel plate. The roof is corrugated sheet metal lightly tacked down, to act as a blow-off type of construction.

The reservoir tanks, of which there are three, present another problem. These are mounted in a metal framework, the base of which is an integral part of the concrete footing. The tanks are mounted vertically and the framework is designed to withstand the jet thrust of one tank if valve failure occurs.

The component under test is placed in a steel box with a bullet-proof viewing port. The door with the port is interlocked with the air supply. At the present time, serious consideration is being given to the use of closed-circuit television for observation purposes.

### Hydraulic Hazards

Prior to the late 1940's our safety program with regard to hydraulics was not extensive because of the relatively low pressures used by the systems on which we were working. Since then, however, work on both military and industrial programs has required testing systems using very high levels of hydraulic pressure.

Some of the dangers involved include oil temperature reaching its vapor point and becoming a fire hazard; hoses and lines leaking high velocity jets of oil which can pierce the skin and cause blood poisoning or serious eye inflammation; and excessive noise from pumps, rams, etc., causing undue annoyance to the operator and thus making him susceptible to accident.

Consequently, we have incorporated a safety program based upon our own experience and the experience of other industries with similar problems. For research, development, and production testing of these systems, in which operating pressures of 3,000 psi. and flow rates of from one to 20 gallons per minute are not rare, we have isolated our hydraulic test areas from the main activities

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of the plant. In so doing, we have made these areas free of dust, tobacco smoke, and temperature variations.

Also, the high noise levels resulting from high-speed pumps have been attenuated. In the performance testing of these components and systems, we have found that the hazards are considerably lessened by the proper placement of the hydraulic units and their associated power sources. These have been placed in an isolated room of the "look-into" type.

Here, the operator, located outside the room, can perform his tests and be aware of the area conditions within as shown in Figure 3. Inside the isolation room, all flexible hydraulic hoses and steel lines are replaced at certain fixed intervals of time, depending upon the severity of the tests they have had to endure.

A standard rule governing the line replacement is that no line shall be in service for more than three months. In addition, it is standard policy to burst-pressure

our chambers to insure their future safety. From the results and data obtained we have been able to build into our chambers safety features to prevent many of the hazards associated with hydraulics.

### Radiation Hazards

The use of radioactive isotopes in electronic testing is increasing rapidly. The entire nuclear field is one of tremendous magnitude, and one which we have just begun to explore. These new techniques also pose new problems of personnel protection. For example, radioactive spark gaps and gas switching tubes are used to obtain a consistency of voltage breakdown heretofore impossible. These tubes are also used as equipment protective devices.

Although a single gap or tube of this type does not in itself constitute a radiation hazard, the accidental breakage of a tube can deposit radioactive salt on the skin. To combat this possibility, detailed safety precautions have been instituted. These have taken the form of complete oral and written instructions to the tester or operator handling such units. In addition, specific instructions have been issued to bury broken units in designated areas. A group of radiation testing devices is depicted in Figure 4.

Storage of large quantities of these tubes also poses a radiation hazard. To eliminate this hazard, storage instructions have been set up which limit the quantities of tubes to lots of 100, and the space between lots to 10 feet.

Further, in the analysis of many of our production problems, it has been necessary to disassemble many such items to determine the cause of malfunction. Such analyses require extreme care in the disassembly process, and entail the use of rubber gloves, glass shields, and subsequent tool decontamination.

A radioactive isotope is also used to simulate high altitude cosmic radiation. Tests are conducted in which high power r-f breakdown measurements are made under simulated conditions of high altitude and high level cosmic rays. In this instance, one millicurie of Cobalt 60 is used as

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moving near machinery



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BE KEPT AWAY FROM ALL ELECTRICAL EQUIPMENT



**STOP LOOK**  
SAFETY EQUIPMENT ALWAYS READY



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YOUR PLATE, GROUND OR CLIP, CHALK, WIPE OFF WITH WET CLOTH, CHANGES IN INFORMATION COLOR

**Prairie State Products Co.** 3822 LAWRENCE AVE CHICAGO 25, ILL.

the ionizing source. This test poses two possible hazards: (1) implosion of the bell jar; and (2) radiation damage.

To eliminate the implosion hazard, the bell jar is placed behind shatterproof plastic doors. A typical test apparatus is shown in Figure 5. The radiation hazard is overcome by placing the Cobalt 60 within a lead cylinder, minimizing stray radiation.

All personnel performing test functions involving the use of radioactive material wear film badges which are checked weekly. Although labor code rules allow for whole body absorption of 300 milliroentgens per week, in no case do we permit more than one-third of this amount. This is accomplished by strict adherence to a personnel rotation system. Again, as in the case of pneumatic testing, a study is being made of the possibility of closed-circuit television for nuclear work.

Safety is a problem of unceasing observation. Each new system is a challenge which may require more rigid safety programs. As an example, completely enclosed and isolated chambers are presently being designed as a solution to the hazards inherent in the new field of testing oils at very high temperatures.

For every technological step forward, safety engineers must be prepared to keep pace with a new device or program which will insure the safety of those who must work in the new field.

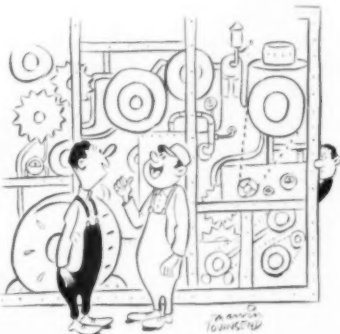
### AEC Issues Radiation Training Unit

THE SAFETY and Fire Protection Branch, U. S. Atomic Energy Commission, has prepared a radiation safety training unit to meet the basic employee training need of organizations having any radiation hazard.

In simple, non-technical language it relates radiation hazards to other industrial hazards, makes clear the difference between internal hazard and external hazard, explains what is done to protect the employee, and what he must do to protect himself.

The unit consists of a set of slides, a printed booklet, and an instructor's handbook.

The set of 46 full color cartoon slides is available from a commercial source at \$11.50 per set mounted in cardboard, \$18.40 per set mounted in glass. (Individual slides rather than a slide film are provided to permit the removal of any slide which is not applicable in a particular instance.) To learn



"Quiet? Why this machine runs so quiet you can hear the foreman sneaking up on you."

where to buy the slides, write Safety and Fire Protection Branch, U. S. Atomic Energy Commission, Washington 25, D. C.

Line sketches of the slides have been printed in the *Radiation Safety Primer* available from the Government Printing Office at 25 cents a copy, 25 per cent discount for orders of 100 or more. The booklet is suitable for distribution to employees. Pages giving specific precautions are printed on one side only—so they can be removed if not applicable.

The *Radiation Safety Primer Instructor's Handbook* provides a commentary on each slide and warns against some pitfalls of radiation safety lectures. Single copies are available at 35 cents each from Safety and Fire Protection Branch, U. S. Atomic Energy Commission, Washington 25, D. C. The *Instructor's Handbook* is not sold by the Government Printing Office.



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# Inside NSC

with Fred Lubet

Activities and people at 425 North Michigan

## Improved Safety Program at NSC Headquarters

One morning recently the National Safety Council woke up to the fact that its safety program hadn't kept pace with the Council's growth.

The safety organization had been on a homey, informal basis, suitable for a smaller company. But what the Council now needed was—for lack of a better world—a more formal safety program, with the lines of authority and responsibility for accident prevention definitely drawn, and with established procedures for maintaining safe conditions and training employees.

Such a safety program has been established, with these principal features:

1. The safety program is under the direct leadership of the Council's executive vice-president, Maj. Gen. George C. Stewart.

2. An executive safety committee, to advise the executive vice president, was named with the following members: G. C. Stewart, chairman; D. L. Arm; George Burns; W. G. Johnson; R. L. Forney; F. A. Van Atta, and Dan Adair, secretary.

3. Mr. Adair was named NSC safety director. He reports to the executive vice-president and is responsible for the administration of the safety program.

4. Staff members were appointed to advise the safety director on various special aspects of the safety program. They are:

K. A. Kelsen, health  
Wendell Blair, construction  
Franklin Pater, fire  
Gordon O'Neil, off-job  
L. W. Dutton, materials handling  
George MacDonald, electrical  
G. F. Griffin, training  
J. C. Kato, suggestion system

5. The employee safety committee will continue to function as an advisory body to the safety director.

6. The Council's over-all safety program will embody safety training for employees in certain departments

(stock, shipping, printing, and other non-clerical), establishment of a safety suggestion system, and an active off-job safety program.

The Council's policy concerning employee safety was stated in a memo sent to all staff members. It read as follows:

"The safety of our employees is the first responsibility of management. Safety is an integral part of sound operating practice; the safe way is the right way.

"Since safe living—on and off the job—is of the greatest importance, all employees should conform to the safe practices recommended by the Council.

"Our safety program, operations, and physical plant shall conform to the recommendations of the *Accident Prevention Manual for Industrial Operations* and to the requirements of applicable safety laws, codes, and regulations."

(signed) G. C. Stewart  
Executive Vice-president

## Staff Changes

Dan Adair is director of the Council's newly formed Labor Division. Dan joined the Council staff in 1950 and has been staff representative to the Wood Products Section. Prior to joining the Council, Dan was supervisor of safety, Department of Labor and Industries, State of Washington, and before that was business representative of the International Woodworkers of America.

(See page 94, June NATIONAL SAFETY NEWS for story on the functions and objectives of the Labor Division and Labor Conference.)

F. A. VanAtta was named director of the Council's Research Division on March 4. Van, a Council staffer since 1943, was staff representative to the Chemical and Rubber Sections and doubled as director of industrial hygiene. Van, who received his Ph.D. from Northwestern Univer-

sity in 1936, was industrial hygienist for the state of Illinois before coming to the Council. He has written many articles on chemical safety and occupational hygiene, his latest contribution being the chapter on safety for the *Encyclopedia of Chemical Technology*.

The Research Division which Van heads will not itself test or

#### TIP OF THE MONTH

NSC's telephone number is Whitehall 4-4800. It doesn't appear on the Council letterhead, so if you haven't committed it to memory, make a note of it. That way, you'll save yourself 20 minutes or so next time you want to give us a call about something.

Incidentally, if you want information about materials, services, an order that you've placed, or some aspect of your membership service, just place your call station-to-station, then ask the NSC operator for Membership Service Bureau. They're the people best equipped to give you information of this type. And, of course, station-to-station rates are cheaper.

approve safety materials. Its objectives are, broadly, to:

1. Collect information about research work in progress in safety and closely related fields.
2. Assemble, collate, analyze, and distribute information on completed research projects.
3. Encourage the prompt publication of work as it is finished.
4. Collect and develop ideas and proposals for new investigations.
5. Find agencies and means for carrying out meritorious investigations.
6. Encourage and assist investigations by the Council staff in fields with which it has unique potentialities.

The first work of the Research Division will be in the area of traffic and transportation safety—information on 60 projects in this area has already been collected—but it is intended that all areas of safety investigations will be covered fairly soon.

James D. Saul, formerly Industrial Department editor and staff representative to the Printing and Publishing Section, who left the Council a few months ago to work with a Chicago advertising agency, has returned to the Council staff. His new job is director

# FIRM-GRIP

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**INDUSTRIAL PRODUCTS COMPANY**

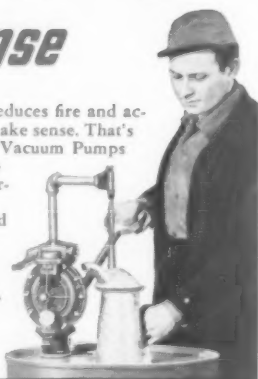
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## Pumping makes sense

Any plant improvement that reduces fire and accident hazards certainly does make sense. That's the case when Tokheim High Vacuum Pumps are put into service. They help prevent spilling, slopping, overfilling and dripping. Operate on both forward and backward strokes—deliver 20 gallons per 100 strokes. Available with hose or spout outlets and other optional attachments.

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of the Operation Safety Bureau in the Traffic and Transportation Department.

**Forsythe Render**, senior administrative assistant in the Industrial Department for nine years and assistant secretary to the Industrial Conference, has moved up and over to the Women's Division, where she is assistant director.

**K. A. Kelsen** has joined the Council staff as industrial hygienist and staff representative for the Chemical Section. Arthur (that's what the man wants to be called) got his master's degree in chemical engineering from the University of Minnesota in 1940, did a stint in the Navy, and worked for the Goodyear Company and Western Electric as industrial hygienist.

**Grant O. Shibley** comes to the Council staff from the Ohio Box-board Company where he was safety director. Grant is the new staff representative for the Textile and Glass and Ceramics Sections, and for the Off-the-Job Safety Committee of the Industrial Conference.

Like Art Kelsen, Grant also is a Goodyear alumnus, having been assistant safety director at the Akron plant for five years. Grant's a graduate of the University of Akron and has taught high school mathematics and science courses.

### Six Railroads Named NSC Award Winners

SIX CLASS I railroads, which have been named group winners of the Railroad Employees' National Safety Award of the National Safety Council, had a 1955 employee casualty rate 56 per cent less than the average rate for all Class I railroads.

The combined rate of employees killed and injured per million man-hours worked was 3.34 for the six winners, as compared with a 1955 rate of 7.60 for all Class I railroads. (Class I railroads are those whose operating revenues exceed \$1,000,000 annually.)

The six Class I winners and their rates were:

Great Northern Railway Co. won first place among railroads

whose employees worked 50 million or more man-hours. Its total accident rate was 3.12, as compared with an average of 6.64 for all railroads in this group.

Texas & New Orleans Railroad Co. was winner in the 20 to 50 million man-hours group. Its rate was 3.87, as compared with 6.90 for all railroads in the group.

Denver & Rio Grande Western Railroad Co. won first place in the 8 to 20 million man-hours group. Its rate was 3.02 and the group average was 8.35.

Bessemer & Lake Erie Railroad Co. was winner in the 3 to 8 million man-hours group, with a rate of 3.14, as compared with a group average of 8.88.

Peoria & Eastern Railway Co. was first in the 1 to 3 million man-hours group. Its rate of 2.71 compares with a rate of 12.01 for all railroads in the group.

Texas & Northern Railway Co. won in the group whose employees worked less than 1 million man-hours, with a zero rate, as compared with a group average of 12.90.



## New poison ivy ointment has both zirconium and antihistamine

Now Zircreme has an antihistamine additive to make this highly effective poison ivy ointment even better.

MSco A-20 Zircreme contains zirconium, the latest medically proved treatment for poisonous plant dermatitis. Zirconium is widely accepted by leading dermatologists in the medical profession. It is the newest approach to the poisonous plant hazard.

In combination with the curative properties of zirconium, the antihistamine pyrilamine maleate is now added to relieve itching caused by poison ivy, poison oak, and poison sumac. This is the first time this combination has ever been made available in the unit system of first aid for your workers' safety and comfort... another "MSco first." See your distributor or write for details. Medical Supply Company, Rockford, Illinois. In Canada, Safety Supply Company, Toronto 2.

Among divisions of the Pullman Co. the Southwestern Region operations had the best record. Among Pullman shop units, the Richmond, Calif., shop was the winner.

Among switching and terminal railroads (those not engaged in Union Railway & Depot Co. was winner in the group whose employees worked more than 1,500,000 man-hours. The New Orleans Terminal Co. won among the roads working fewer than 1,500,000 man-hours.

## Country of Widows

DURING WORLD WAR II in a town in Holland there was a reprisal by the invading army. The reprisal was the result of an attack by members of the underground on two officers of the invader, and one officer was killed. The next day 675 men, from 17 years of age up, were shipped away and when the war ended only 125 returned. And now the town is known as the Town of Widows.

The town has published its own record of this grisly raid and its aftermath in the following description:

"If all the heavens were paper and all the seas were ink and all the trees were pens, it would not be possible to record the sadness."

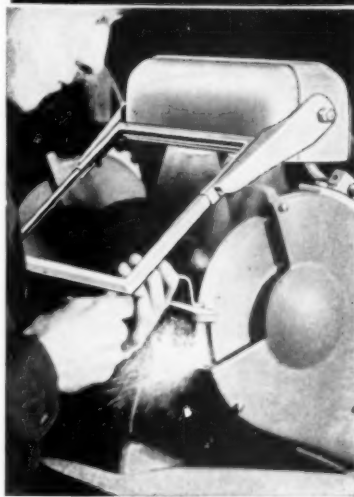
In this instance all the sadness that could not be recorded was confined to one locality. Let's look to our country where every year 15,000 to 20,000 fatalities are recorded as occurring in industry. What would it take to record all the sadness produced by the 90,000 to 100,000 fatalities in our country every year? All we could add to what is quoted above is regardless of the medium used, it is still recorded in tears and blood.

A safety conscious nation will eliminate the fatalities produced by accidents. Let us not be known as a Country of Widows.

*Foremen's Safety News,*  
Youngstown Sheet & Tube Co.

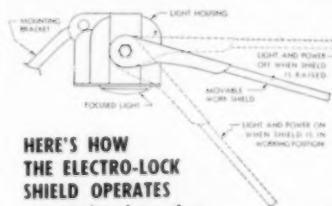
Wife to Husband: "Of course I spend more than you make, dear. I have confidence in you."

## JUNKIN ELECTRO-LOCK SHIELD



### The Shield Which Commands Operator Safety

The position of the Junkin Electro-Lock Shield is controlled by mercury switches. Interlocking power and light circuits will not permit the machine to operate unless the shatter-proof shield is in a completely protective position. Affords perfect visibility, and protects the operator from flying particles. Write for free bulletin No. 103.



HERE'S HOW  
THE ELECTRO-LOCK  
SHIELD OPERATES  
—permits clear view  
of work, still providing  
maximum protection

**JUNKIN**  
SAFETY APPLIANCE CO.  
101 S. FLOYD ST.  
LOUISVILLE 2, KENTUCKY



**THOUSANDS INSTALLED IN '55**

## **Sani-Dri Saves All Towel Costs!**

**Cuts Maintenance . . .  
Automatically  
Eliminates Litter!**

No. 7-A Sani-Dri  
in school



Not 30% . . . not 60%  
... you get 100% savings  
on towel costs with  
Sani-Dri . . . plus 85% sav-  
ings on maintenance over-  
head. No more empty towel  
cabinets . . . no messy, un-  
sanitary washrooms . . . no  
fire hazard . . . no clogged  
plumbing. Sani-Dri gives  
you 24 hour automatic dry-  
ing service that is clean  
and sanitary, plus savings  
never possible with towels.  
Underwriter's Seal and  
full 2 year guarantee!



No. 8-A Sani-Dri in  
public building

**HAIR DRYING** is now considered a  
must in girls' shower rooms in today's  
schools to prevent colds and sickness.  
Sani-Dri also used to dry athletic equip-  
ment—ideal for pools, etc.

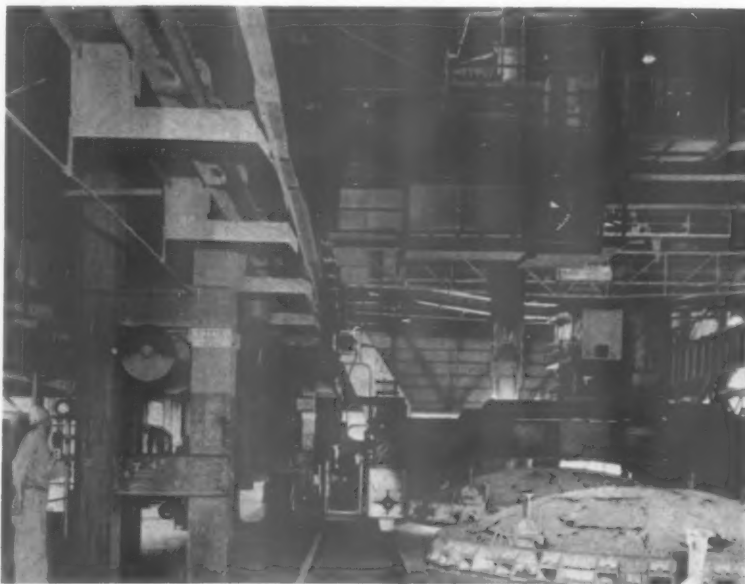
### **WRITE TODAY!**

Get the actual savings facts  
about the original and only  
complete line of electric  
hand and hair dryers.



**THE CHICAGO HARDWARE FOUNDRY CO.**  
1076 Commonwealth Avenue  
North Chicago, Illinois

## **FM Circuit Provides Crane Communication**



**JOHN RILEY**, foreman at Sheffield Steel, speaks over FM radio circuit to crane operator from floor of soaking pit. "Ground" unit is equipped with pull-down-to-talk switch. System is effective up to one mile.

**HAND AND WHISTLE** signals have yielded to progress. More modern means of communication between crane-cab and floor workers now are in use at the Sheffield Steel division of Armco Steel Corporation in Kansas City, Mo.

The installation of a new Telecrane FM carrier communications system has replaced other signal systems. It has made possible clear oral communications without interference or risk of misunderstandings. The communication system was supplied by Mine Safety Appliances Company, Pittsburgh, Pa.

Three stations in crane cabs with a base station, a remote station in the soaking pit area, and a base station and a crane cab station in the blooming mill make up the initial installation.

Each mobile or crane station consists of a loud speaker, an adjustable microphone, and a foot switch to close the microphone circuit while leaving the opera-

tor's hands free at all times.

The base or ground stations are compactly housed units. Each has a microphone-speaker combination with a pull-down-to-talk switch.

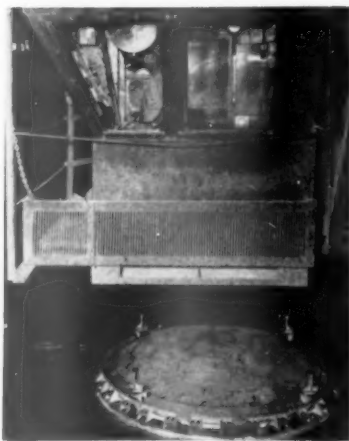
At the Sheffield plant, the installations enable men in the pulp station of the blooming mill to notify the crane operators when to draw an ingot from the soaking pits. Timing is vital. The ingots must be drawn at the proper time so there is no delay in rolling. Allowing the ingot to cool would necessitate reheating operations.

Sheffield also is amplifying the system's signals. This enables the foreman in the soaking pits area to hear conversations between crane operators or blooming mill operators at the crane stations. The result is a clearer understanding of orders with greater safety, coordinated operations, and speedier production.

Installation of the Telecrane system was recommended by

C. T. Phillips, superintendent of electrical maintenance at Sheffield.

The communication system is free of transmission noise and outside interference and can be



**ADJUSTABLE** equipment permits crane operator above soaking pit floor to talk directly into microphone. Foot switch frees operator's hands.

heard clearly above the noise of nearby operations. No special wiring is necessary. The FM carrier waves are transmitted over existing electrical circuits.

Any desired frequency within the range of the equipment may be set up, and 10 different frequencies are possible within a single plant without cross interference. A range of one mile is possible with satisfactory power line conditions.

The system also may be operated on batteries in instances where no power lines are available such as remote docks or barges.

Telecrane systems require no special training or licenses to operate.

### Standards Engineers to Meet in Washington

TODAY'S technological problems will be surveyed and possible solutions through application of standards will be considered at the Fifth Annual Meeting of the Standards Engineers Society, October 3-5. Theme of the meeting is "Standards—Guides for Tomorrow." It will be held at the Hotel Willard, Washington, D. C.

Sessions are scheduled on standardization in the chemical industry, standards and the atomic energy field, the future trend of standards in the metals field, creative engineering and standards, progress of engine standardization, and what may be expected in the ABC unification effort. Also scheduled are discussions of screw thread standardization from the viewpoint of the manufacturer; the metrologist and the government; progress in anti-friction bearing standardiza-

tion; and management standards.

A new feature will be presentation of awards for outstanding performances and service in the field of standardization. This is in addition to presentation of fellowships to outstanding personalities in the field of standards. The awards will be presented at a luncheon October 5.

The average man's idea of a good sermon is one that goes over his head—and hits one of his neighbors.

**WANT MORE EFFICIENT—  
LONGER LASTING STEEL STAMPS?**

**USE  
SAFETY WEDGE GRIP  
LETTERS and  
FIGURES**



- No Spall
- No Mushroom
- More Service
- Knurled Grip
- Patented under No. 2,089,794
- Thumb Side Markings

• Knurled sides for positive grip—patented design provides perfect balance and deeper impressions. Especially recommended for toughest jobs on steel castings, cylinders, tool steel, etc. All sizes available 1/6" to 1" characters.

• **Write for Bulletin LF-108**

**Mecco SAFETY MARKING TOOLS**

**M.E.CUNNINGHAM CO.**

1053 CHATEAU STREET, PITTSBURGH 33, PA.



Free sample when requested on company stationery.

### CUT DOWN NOISE WITH THE SMR EARSTOPPER

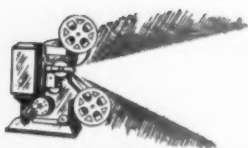
Soft, comfortable, resilient, the SMR EAR STOPPER adjusts itself to all shapes, turns and movements of the ear canal. Will not slip out of the ear. Has a long life and is reasonable in cost. Furnished in a plastic case. Forty-five cents per set in gross lots.

**SURGICAL MECHANICAL  
RESEARCH INC.**

1905 Beverly Blvd., L. A. 57, Calif.







# FILM NEWS

For further information on publications or films listed here, write Nancy Lou Blitzen, Film Consultant, Membership Service Bureau, National Safety Council

NATIONAL SAFETY NEWS readers desiring a copy of the 1956 *National Directory of Safety Films* are urged to send their

orders to the Council. In previous years the Directory was sent automatically with each copy of the June issue of the NEWS; this year

## Eyes DUSTY, DRY?

### YOU NEED . . . FOG-PROOF, GAS-TIGHT GOGGLES

...for paint spray, gases, dusts, fumes, smoke. They hug your face so securely that hazardous outside elements cannot reach your eyes. Fog is removed from lenses by an easy nod or shake of the head. The few drops of water placed on the inner wall of the lens do the trick. Can be worn with any respirator. Sample, \$2.00 postpaid.

H. S. COVER, P. O. Box 2508, South Bend 14, Ind.

"Respirators for Industry since 1894"



## AN INVITATION

to ruptures, strained backs, smashed fingers and other injuries—old fashioned hand, foot and bar methods of closing latch-type-lock, hopper-bottom car doors.

Better write today for free folder on the Prescott Safety Tool.

The  
**TRUMBULL MFG. CO.**  
WARREN, OHIO

it must be ordered separately.

Since the use of films is now a primary aid in teaching and spreading ideas, the Directory provides a compact source of information on the availability of films on safety, first aid, fire prevention, and civil defense which is invaluable aid to those who use films on these subjects.

More than 290 producers, distributors and sponsors of such films were contacted to obtain the information given in the Directory. Over 1,200 films are described and these descriptions include millimeter, running time, color, year of production, plus a brief story of the plot.

Each film described is available for purchase, rental, loan or long-term lease from one or more of 292 distributors making their films available on a national (or international) basis.

Aside from a listing of these distributors, there is a separate listing for those organizations which limit distribution of films to specific areas, both in the United States and Canada. These limited distributors usually make films available for loan or low-cost rental and are excellent sources for public safety films (traffic, home, farm, school, etc.).

The Directory is a unique publication as it gives information only on known safety films, and only on those films where there is no restriction on distribution. Subjects covered are industry, commercial transport, general traffic, home, farm, education, plus other general interest subjects. Many of the films described are cleared for television use and quite a few are for theatrical distribution.

A single copy of this Directory sells for \$1.00. Quantity prices will be sent on request. Address inquiries and orders to Nancy Lou Blitzen, Film Consultant, Membership Service Bureau, National Safety Council.

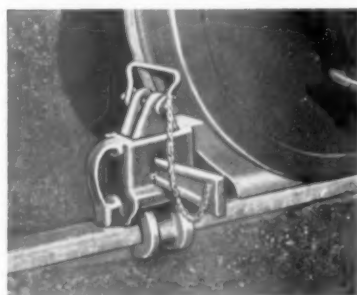
"My brother is going to Europe and I'm going to New York to wish him bum voyage."

"You mean bon voyage, don't you?"

"No, he's taking a tramp steamer."

# STOPPED

*and it can't move*



## WHY?

**Because No Car  
Wheel Can Move  
When It's Held  
In Position With The  
M & M RAIL CLAMP**

Heavy industries—mines, quarries, mills, etc.—depend upon the M & M Rail Clamp to reduce danger of costly accidents and injury to employees from cars slipping or running away. It will not slip!

The M & M Rail Clamp is a compact, complete, durable unit. No parts to lose—wedge is attached to clamp with strong steel chain. No blocks, ties or shims needed—saves time in positioning and moving up. It withstands the weight of heaviest cars.

See for yourself how the M & M Rail Clamp performs. You won't be disappointed. Order one today!

**SAFETY FIRST  
SUPPLY CO.**

425 Magee Street, Pittsburgh 19, Pa.

## After Seven Months Auto Seat Belts Meet Test

THE NORTHERN Illinois Gas Company, which operates more than 400 business cars in its 10,000-square-mile territory, had auto safety belts installed seven months before an occasion to test their usefulness presented itself.

Then, in a grinding crash on a highway near Morris, Ill., the belts proved their worth last March, saving two valuable employees from serious injury or possible death.

Traveling at a moderate rate of speed en route to Bloomington, Ill., on company business in a two-door Chevrolet sedan, Ed Culp, driver, and Pat Warrick his passenger, suddenly hit a section of "patch" ice on an otherwise dry highway. The vehicle veered across the road, hit and jumped a concrete culvert and spun around against a tree.

The two men emerged from the badly damaged automobile with only minor cuts and bruises. Said Warrick, who was riding on the passenger's side of the front seat:

"After the dust settled I was sitting on the seat and leaning halfway out the door. My glasses were thrown out some distance from the car and I don't doubt I would have been out there, too, if it hadn't been for my seat belt. I intend to have them installed on my own car."

Culp, who received only a small scratch on the ankle, firmly believes that he would have been far more seriously injured if he had not been held in the seat by the belts.



"Oh' brother! I'm glad I don't have a day like today every day!"

**Bashlin's**  
30 Years of Quality...

**INDUSTRIAL BELTS**

*"The Parachutes  
of Industry"*



Belt of Bashlin's Quality Cotton or Nylon Webbing. Lanyard ½ inch manila rope . . . safety equipment as necessary in industry as parachutes in the air.

The complete line of Bashlin Quality Safety Equipment for Industry includes the correct belt or harness for the job . . . Also a complete line of linemen's safety equipment.

**You Can't Afford Anything  
LESS Than the BEST—**

**Buy BASHLIN**

**Highest Quality For Over 30 Years**  
Distributors in Strategic Areas in U.S.A.

EXPORT: Copperweld Steel International Co.  
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Toronto

Ask for . . .  
CATALOG NO. 54-S

**W. M. BASHLIN CO.**  
GROVE CITY, PA.

**for  
safety first  
and protection  
that lasts!**

**TOWER'S**

Neoprene  
Clothing



Wherever personnel safety can be threatened by the lack of adequate protection from greases, oils, water, most acids and chemicals, that's where TOWER'S extra protective Clothing belongs. These comfortable, designed-to-fit garments are made of strong, impregnated fabric and are coated inside and out with hazard-resistant Neoprene Latex. Coats, jackets, overalls, hooded shirts, hats and aprons . . . for every industrial use. For complete information mail coupon today, or if you have a particular problem, let us know and we'll solve it quickly with the garment best suited to your needs.



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**A. J. TOWER CO.**

A Division of Sawyer-Tower, Inc.  
Boston 20, Mass.

# SAFETY OFF THE JOB

Suggestions for company and community programs

By Gordon T. O'Neill

NSC Staff Representative, OTJ Safety Committee

## Oregon Home Fire Prevention Program

In 1954 the Oregon State Fire Marshal's Office sponsored a home fire prevention program. The Marshal's Office developed press and news releases, radio and television announcements, dwelling inspection form and a basic procedure and instruction pamphlet for use of fire departments and rural fire districts participating in the Volunteer Home Fire Inspection Program. Numerous promotional talks were given to various fire departments and by June 30, 1954, 30 days after the kickoff, 89 volunteer, full-paid and paid and

volunteer fire departments were participating.

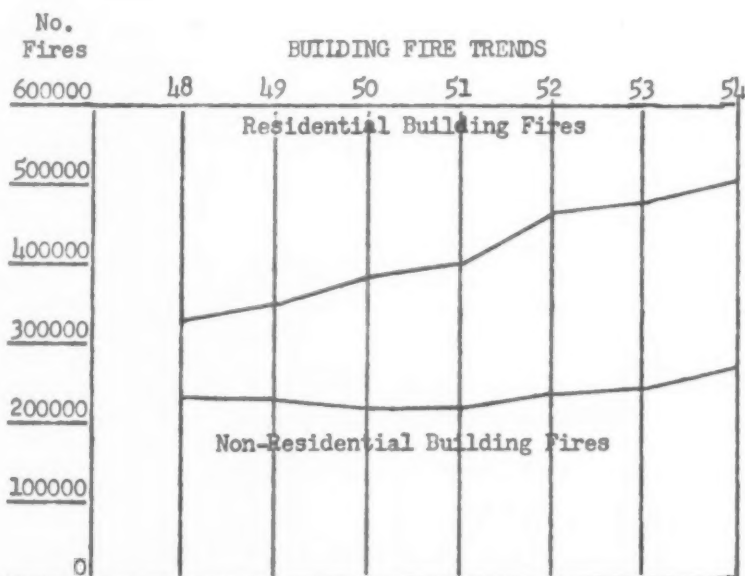
The ability of all-volunteer fire departments to carry on a successful home fire prevention program is shown in the accompanying comparison of calls made by these groups in the first month (Table I).

Final statistics from 80 per cent of the participating fire departments disclosed that approximately 25 per cent of all homes in the state received a call from a fireman inspector and made a fire-safer home as a result of this visit.

One big question that concerned

TABLE I

	Volunteer	Paid	Paid and Volunteer
Not at Home	21.38%	27.47%	32.88%
Refused Admittance	3.14%	3.78%	7.00%
Inspections Made	75.48%	68.75%	60.12%



Source: NFPA Approximations

everyone in the fire service at the start of this first state-wide home fire prevention program was: Would it meet with public approval? Apprehension in this important phase of the program was found to be unnecessary when the yearly reports shows that only 3.37 per cent of the home owners refused admittance to the inspectors.

**TABLE II**  
**Percentage Analysis**

<i>Calls Made</i>	<i>Percentage</i>
Not at Home.....	25.13
Refused Admittance .....	3.37
Inspections Completed .....	71.50
<i>Hazards Found</i>	
Fuse box overfused.....	34.06
Extension cord wiring, excessive/defective .....	18.61
Rubbish not properly taken care of .....	8.78
Unsafe wiring .....	8.00
Stove pipe not properly installed .....	7.76
Combustibles too close to stove/furnace .....	7.01
Defective flue and flue stops.....	5.33
Flammable liquids not properly stored .....	4.22
Stoves not properly installed .....	2.97
Ashes not in metal containers .....	1.73
Oily rags/mops not in metal containers .....	1.20
Miscellaneous hazards .....	0.33

A summary of the available figures after one month of the 1955 Home Fire Prevention Campaign carried on by the fire departments of Oregon, indicated that the public acceptance co-operation was far exceeding that of 1954. Not one fire department participating in 1954's program indicated discontinuing the fire home inspection service during 1955. Fire departments taking advantage of the program for the first time in 1955 swelled the total participating departments to over 50 per cent of the organized departments in the state.

Early figures from fire departments completing their inspection tours showed that refusals dropped from an average of 3.37 per cent in 1954 to an average of 2.89 per cent in 1955. This drop alone indicates that the public is becoming more receptive and

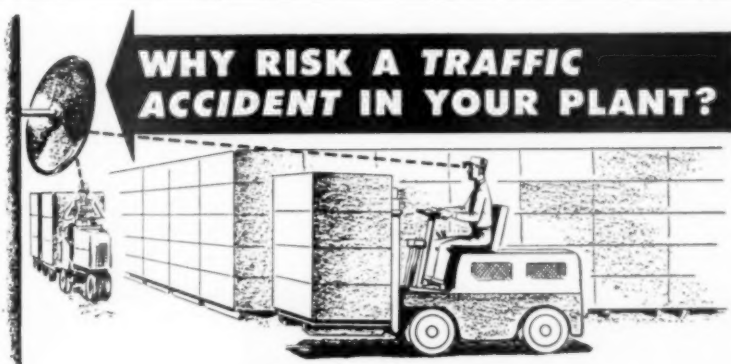
conscious of the firemen to prevent home fires. Much of the credit for the drop in refusals is due to cooperation of the newspapers, television and radio stations in publicizing and explaining the program. Without adequate dissemination of information, a public service such as home fire prevention cannot hope to succeed.

### Residential Fires Increasing

Residential building fires, which include dwellings, apartment

buildings, hotels and rooming and boarding houses, have accounted for over 60 per cent of the building fires since 1948. Dwelling fires have been continuously increasing in proportion to all building fires and in 1954 accounted for almost 90 per cent of the residential building fires and over 65 per cent of all building fires.

At this time a correlation between fire causes and building occupancy is not available. The following fire causes, for 1954, are applicable to both residential and



## WHY RISK A TRAFFIC ACCIDENT IN YOUR PLANT?

**KLEAR-VU SAFETY MIRRORS** are the answer to the dangerous blind corner problem in your plant or warehouse. They are also adaptable for outdoor use in your parking lot, loading dock area or other points where traffic converges.

Mounted at cross aisle intersections, entrances and exits at a height of 8 to 10 feet, Klear-Vu Safety Mirrors clearly reflect oncoming intersection traffic to both power truck operators and pedestrians.

Style	No.	Dimensions
Circular Convex Glass	120	12" dia.
Circular Convex Glass	180	18" dia.
Circular Convex Glass	240	24" dia.
Circular Convex Glass	300M.R.	30" dia.
Circular Convex Glass	360M.R.	36" dia.
Flat Glass Rectangular	918	9"x18"
Flat Glass Rectangular	1640	16"x24"

M.R. indicates metal rim.

Available in either convex or flat glass styles, the mirrors are easily installed and quickly adjustable to any desired angle.

### LESTER L. BROSSARD CO.

540 N. MICHIGAN AVE., CHICAGO 11, ILL.

Write for  
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## STOP FACTORY NOISE

OVER MOVING MACHINERY...

INCREASE EFFICIENCY WITH

# SONOSORBER\*

GUARANTEED RESULTS! FREE ENGINEERING SURVEY, ANALYSIS and ESTIMATES. Write Today.

## ELOF HANSSON, INC.

ACOUSTICAL DEPT.  
N57-6

711 THIRD AVENUE, NEW YORK 17, N. Y.

\*REG. U.S. PAT. OFF.



non-residential building fires: smoking and matches—121,300; children and matches—27,100; rubbish, ignition unknown—56,000; hot ashes, coal—14,400; sparks on roof—13,900; combustibles near heater—12,000; electrical fixed services, fires due to misuse, faulty wiring, equipment—60,500; electrical power consuming appliances—33,600; gas and appliances—10,200; defective, overhead heating, cooking equipment—91,000; chimneys, flues—

defective or overheated—36,000; lightning—43,200; flammable liquids, misuse of, including vapor explosions, grease, tar, etc.—38,300.

### Showmanship

—From page 82

is distributed in equal shares among the members of the team that has the second best record and if two or more teams are tied for first place for safety and per-

formance the entire \$500 will be distributed in equal shares among the members of such tied teams.

### Radio Publicizes Safety Slogans

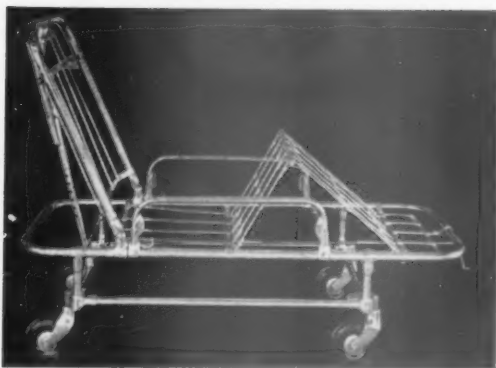
Pullman-Standard Car Manufacturing Company's plant at Butler, Pa., is using radio to good advantage in publicizing its safety slogans and impressing them on the minds not only of employees, but of their families and the community.

With the recent installation of a 10 x 18 ft. changeable copy display board at the shop's main entrance, for the display of safety slogans in 8 in. green plastic letters, it was decided to use the services of a local radio station to make phone calls to homes of employees while "on the air" and



## STRETCHERS

AND A COMPLETE LINE OF AMBULANCE COTS. We Manufacture All Kinds.



## WASHINGTON

### Greatest Name in Cots

COT & STRETCHER EQUIPMENT TO FIT ANY VEHICLE.

OR FOR ANY FIRST AID ROOM REQUIREMENTS.

### ← THIS NEW WASHINGTON KONTOUR COT

offers exclusive features not available in any other cot! The cot can be carried properly, no need to keep head low and foot end high. It easily shortens from 75" to 52", for easier turning, and at the same time patient is made more comfortable. Both patient and mattress stay in place without straps or holding, no matter how steep the carrying angle. The patient is more completely relaxed, feels more secure, with no fear of falling! A simple hand crank raises the bed section under the patient's knees, as the cot length is shortened.

Let WASHINGTON's progressiveness and reputation for 'finer' equipment be your guide in buying the BEST.

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## WASHINGTON PRODUCTS CO.

238 SO. FAYETTE ST. — WASHINGTON C. H., OHIO



### FOR SAFETY'S SAKE... DAV-SON FLASHING SAFETY DIRECTOR

With Amazing Changeable Letter Slide Out Panel

Bright traffic light red, green spots flash "SAFETY FIRST." Color, motion, light bring eyes directly to message. Only DAV-SON has changeable letter design with removable panel for quick changes, peak attention. 98 red 3 1/2" and 250 black 1 1/2" acetate letters in compartment box incl. Size 18 1/2 x 29 x 6. Complete with lamp and U.L. Cord. \$39.75

Insist on genuine self-sealing cork back bulletin boards—hardwood frame. Sizes 12 x 18 and larger. With or without glass doors. \$4.15 up. Also with metal frames for inside or outside use.

A Dav-Son board for every purpose. Over 100 different sizes and styles to choose from. Dealer Inquiries Invited. If your dealer doesn't have the Dav-Son board you need write direct.

A. C. DAVENPORT & SON, INC., Dept. NSN  
311 N. DESPLAINES STREET • CHICAGO 6, ILLINOIS



WORKERS at Pullman's Butler (Pa.) plant pass this 10 x 18 ft. signboard at the plant's main entrance.

to make awards to any family members who could repeat the week's slogan to the announcer.

National Safety Council's windproof lighters and compacts bearing the "Green Cross for Safety" emblem were purchased for use as awards. For each week there is no "winner," a cash deposit is added to the following week's award.

The idea soon caught on, and it is nothing unusual to see an employee standing before the board studying the slogan so that he will be sure that he remembers the exact wording to tell his wife and family so that they will be



**EMPLOYEE** Tony Wulff and his wife, who won a "Green Cross" compact by memorizing a safety slogan in Pullman's radio contest.

able to repeat it if the coveted call should come through to them.

Many humorous incidents have resulted on the air as well as at the plant, and the safety slogan at Butler is no longer lifeless lettering on a bulletin board but has become "one of the family."

### C. D. Calkins Wins Dow Memorial Award

C. D. CALKINS, director of safety for the Pacific Motor Trucking Company, San Francisco, has been named winner of the 1955 Marcus A. Dow Memorial Award.

The Dow Award, designed to recognize, reward and foster high standards of professional achievement in the field of motor transportation safety engineering, consists of a plaque and \$500. It was established in 1951 by the National Safety Council through a grant by the Greyhound Corporation.

Mr. Calkins joined the Pacific Motor Trucking Company in 1933 and was made its director of safety in 1941. The company operates 4,500 units in city and intercity common carrier trucking with its 1,800 drivers rolling up more than 50 million miles annually. During 1955, the company's accident costs totaled only 1.56 per cent of gross revenue which is considerably less than half the national average.

For 11 years, he has been a member of the executive commit-

tee of the Commercial Vehicle Section of the National Safety Council and for two terms was general chairman of the section. He has also served on committees of the American Society of Safety Engineers and the American Trucking Associations.

He has written articles on safety engineering for national and regional trade journals. Monthly driver and supervisory releases written by Mr. Calkins are widely distributed throughout the industry. His work as editor for the past three years of *Safety Circle*, monthly publication of the San Francisco chapter, ASSE, has made it one of the finest publications of its kind.

Mr. Calkins has served as instructor in fleet supervisor training at the University of California, and he has assisted in the safety work of such organizations as the California Truck Owners Association, the California Governor's Safety Conference, Northern California Truck Rodeo Committee,

and the Oakland Mayor's Safety Conference.

He was chairman of the fleet section of the San Francisco Chapter, National Safety Council, for three years. Presently a member of the executive committee of the San Francisco Chapter, ASSE, he is also a panel member of the San Francisco Bay Area Council of Fleet Safety Supervisors.

Mr. Calkins is a member of the Board of directors of the Santa Clara County chapter of the National Safety Council and has participated actively as a member of the committee for the improvement of fleet supervisory practices of the Greater Los Angeles Chapter of the National Safety Council.

The late Marcus A. Dow, for whom the award was named, was manager of safety and personnel for Greyhound. He was also vice president for public safety and president of the National Safety Council.



**STOP COSTLY FALLS...THIS QUICK !**

### Safety condition your plant with "SAFETY-WALK"

Here's the new mineral-coated fabric that provides perfect traction—sure footing—even under water or grease! And it's easy to apply, easy to keep clean. Use "SAFETY-WALK" Non-

slip Surfacing also on stairways, ramps, walkways—wherever the danger of a fall is present. It pays off in accident prevention, better employee relations . . . stops costly production delay.

**FREE SAMPLE!** Please send me "SAFETY-WALK" sample and complete information

Minnesota Mining & Mfg. Co.  
Dept. LB-76, St. Paul 6, Minn.

Name.....

Company.....

Address.....

City.....Zone.....State.....

REG. U.S. PAT. OFF.  
**SAFETY-WALK**  
BRAND  
**WETDRY NON-SLIP**  
REG. U.S. PAT. OFF.  
**SURFACING**  
Made in U.S.A. by  
Minnesota Mining & Mfg. Co.  
St. Paul 6, Minn.

Also makers of "Scotch" Brand Pressure-Sensitive Tapes, "Scotch" Sound Recording Tape, "Underseal" Rubberized Coating, "Scotchlite" Reflective Sheeting, "3M" Abrasives, "3M" Adhesives. General Export: 122 E. 42nd St., New York 17, N. Y. In Canada: London, Ont., Can.



## Post-Mortems

—From page 70

jured man depress the spindle locking pin to remove the nut but he did not notice the injured man make any change in the speed setting. Before and after this assistance he was working on the adjacent machine.

### Failure of Interlock

Apparently this was possible despite the safety interlock intended to prevent over-speed. Undoubtedly this was caused by a broken link in the safety mechanism.

Figure 3 is a sketch of the safety link mechanism. Cast iron arm is the part apparently broken at some time prior to the accident. This arm is keyed to the steel shaft 6, and the arm 7 is in turn pinned to shaft 6 to maintain the parts in a fixed and proper relationship. It appears that at some time when the speed was changed arm 5 broke through the keyway. This may have been caused by a

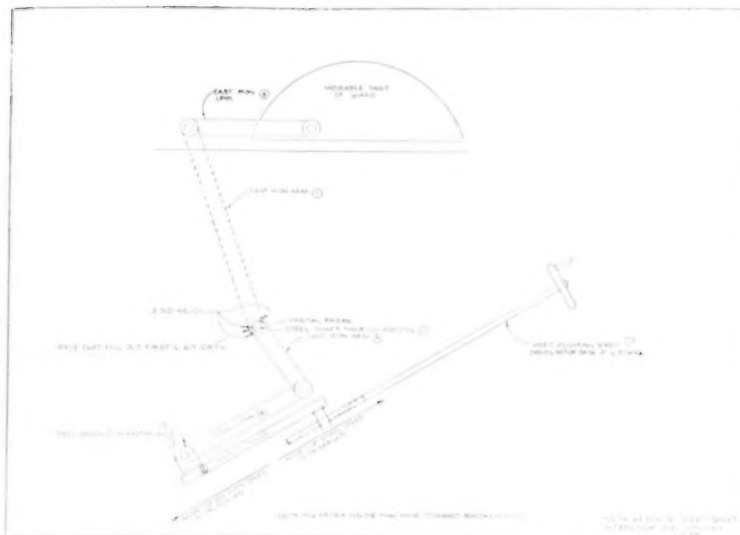


FIGURE 3.

stiffness in the moving part of the guard due to accumulations of grindings or a tight set screw on the guard which in turn overstressed this link. When this part was broken through the keyway,

it could no longer carry out its proper function even though it still remained more or less in place on the end of the shaft. It appears that this arm (Fig. 3) was broken at some time prior to the accident because a piece of the link was found within the machine housing broken side up. The break, however, was dirty whereas other parts broken during the accident showed clean fractures.

It appears that the cast iron link (Fig. 3) and the other parts of the linkage are under-designed for the stresses actually encountered in production service. This is indicated by the fact that not only did this link fail, but also, at another time, the similar link serving the left-hand wheel of the machine failed. The left-hand link was subsequently replaced by a steel link fabricated by the Maintenance Department. Earlier failures in both of these links were repaired by welding, prior to the replacement of one of them with a steel part.

### Failure of Guard

Following placement of the wheel, the flanges and nut were assembled in the proper manner. Proper washers were used between the wheel and the flanges. The guard was closed and all fastening bolts were replaced. The injured man then restarted the machine and according to the other employee he dressed the

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wheel. He then ground castings for approximately two hours before the wheel burst due to over-speed. The proper operating speed for the new wheel is 1210 rpm. The test speed is 1815 rpm. This test speed is maintained for about one-half minute after fast acceleration to this speed, according to the manufacturer. This is in conformance to the applicable ASA Code No. B7.1-1947. The speed at the time of failure (2100 rpm) exceeded even the test speed.

When the wheel failed, instead of remaining within the guard as it should have, the upper part of the guard (36 lbs.) was propelled up into the crane cab 50 feet away. The operator was out of the cab at the moment, hence escaped injury. One piece punched a hole in the cinder block wall opposite the machine and one piece struck the metal partition above the cinder block and crane run. Other fragments flew in all directions around the shop. The side of the guard normally removed for wheel change was torn loose, bounced down on top of the next grinding machine, and landed behind the machine. The employee working on this machine narrowly escaped serious injury. The friction saw operator who would normally be nearby escaped serious injury through the coincidence of completing the work on hand shortly before the accident. The night turn foreman also narrowly escaped injury. He had been moving work adjacent to this grinder only five minutes previously.

The most important factors contributing to the failure of the guard were bad design, especially of the fastenings, and bad welding. The guard was far below ASA Specification B7.1-1947. The bolts that fasten the removable cover to the guard were grossly under-size, all sheared off. The inadequate weld fastening of hinge block to cover failed. The welds fastening this 5/16 in. plate cover to a 1½ in. hinge block failed through weld area only 1/16 in. in width. This weld, which was supposed to be continuous, was, in fact, fused only intermittently including less than 25 per cent of its length for most of the length of the joint. Inadequate welds between hinge blocks and the re-

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movable portion of this upper cover, also failed. All six bolts that fastened the guard to the machine sheared off.

Examination showed the motor, spindle and bearings to be in good working order, the overload circuit breaker to be set for 42 amps against 37½ amps rated current and not tripped, and line protection through 50 amp fusetrone fuses, not blown. Current to the motor was probably stopped after the wheel failure by a jar of the machine frame causing the stop button circuit to open. No lack in parts other than above discussed, or in the wheel can be shown to have contributed to the accident. The original motor is on the machine and has never been off as shown by the condition of the original paint on hold-down bolts.

### Committee Opinion

**A. Cause of Accident.** Grinding wheel operated at excessive speed causing it to burst.

**B. Responsibility for Accident.** Man ignored instructions regarding speed vs. size of wheel. Machine Maker—Poor design and construction of safety interlock and guard. Company failure to inspect machine upon arrival for compliance with existing safety codes; lack of foresight in maintenance which if exercised would have corrected inadequacies in safety linkage.

### Recommendations

1. Rebuild safety linkage using amply strong steel parts throughout.
2. Add a second safety linkage so that failure of one will not permit a recurrence. This might also prevent opening guard except when speed is set slow.
3. Add a speed indicator and permanently attached table of safe speeds.
4. Redesign and build new guard meeting ASA minimum codes. The division between the upper and the main part should be eliminated or redesigned.
5. The above to apply to both wheels of this machine.
6. Speed to be increased on all variable speed grinders only by authorized personnel.
7. New wheel installations on all grinders of over 24 in. wheel size to be checked by authorized personnel.
8. A survey to be made of all plant grinding machines to check for com-

pliance with ASA safety code and positive overspeed prevention.

9. A general maintenance policy to be adopted of replacing failed parts of any importance or related to safety only with stronger parts unless the failure of the part is definitely known to be due to a serious overload and unless such overload can positively be prevented from recurring in the future. Cast iron parts of importance or related to safety not to be repaired by welding or bracing.

10. The bearings and spindle of the failed end of this machine to be disassembled, degreased, visually inspected by the Maintenance Department, and Magnaflex inspected by the Metallurgical Department before reassembly prior to restoring this machine to service.

## Industrial Community

—From page 80

ample is the group that backed and helped formulate the BB-gun ordinance recently passed, making adults totally responsible, prohibiting the firing of air rifles or BB-guns within the city limits with a fine of from \$10 to \$100 for violation.

Another committee will work on simple basic home and office first-aid folders in conjunction with the Lake County Medical Society. Another committee will contact state senators and representatives to work toward state laws regulating quality of automobile safety belts; pressurizing for driver classes in schools; for registration of names of people buying poisons at drug stores. (Indiana has no such law.)

Our concept of the function of the Council is not only to seek hazards in all areas and prevent accidents, but also to provide the ABC knowledge of what to do if an accident occurs, i.e., fliers in "Do-It-Yourself" kits; fliers to plasterers, indicating what to do if they get plaster or caustic into their eyes; fliers to service stations where new announced types of car batteries with dangerous acids will be serviced by untrained personnel.

And finally, while we expect to have few regular steak and fried potato get-togethers, we will instead, have more small project-wise meetings, expecting to rec-

ognize in a bit bang-up session once or twice a year, our hard-working committees. We expect to use the facilities of Purdue Center for short courses, lectures for special or general groups, drawing on the already expressed support of Purdue University. Perhaps we can set a pattern for area integration at a later date, there being no sharp lines even of work or home danger between our cities. But, for the present, we're sticking closely to our own knitting. We shall need and seek the cooperation of Service Clubs—Jaycees (already tied into the traffic project), PTA groups, League of Women Voters, Bar Association, County Medical Association, ad infinitum, as well as any single "eager-beaver" who wants to up and at 'em.

This is the concept the newly organized Safety Council has, and the envisioned modus operandi for its functioning.

### Wins International Award at Rome Conference

A EUROPEAN DISPLAY, featuring contributions from the National Safety Council, won for Howard Ennes, director of the Bureau of Public Health for The Equitable Life Assurance Society, an award for leadership in international public health exhibits.

Mr. Ennes received a silver cup from Dr. Clair E. Turner, president of the International Union for Health Education of the Public, for his role in planning the "Citizens' Role in Public Health" exhibit, part of the Third International Conference on Health Education held recently in Rome, Italy. The Equitable Public Health Director was also elected vice-president of the international health organization.

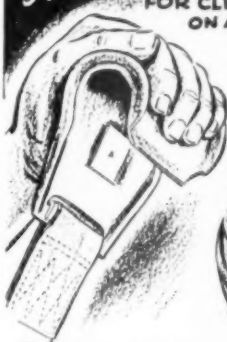
The American exhibit dramatized safety and public health activities carried on by 30 communities throughout the United States.

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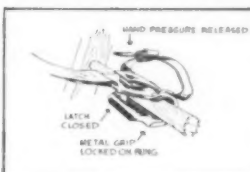
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\* FROM "ACCIDENT FACTS" - 1955 EDITION



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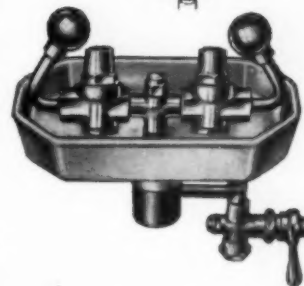


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## Consultation Corner

—From page 15

preventing this buildup of static electricity or for safely discharging it before volatile solvents are handled?

**Answer.** Synthetic fabrics in general are all subject to the buildup of static charges. It is of interest to note that recognized good practice in hospital operating rooms requires that apparel of outer or under garments, or textile products, from any synthetic yarns and silk, sharkskin, wool, or the like, all should be prohibited from anesthetizing areas.

It is possible to minimize the static problem by installing a conductive floor and providing the personnel with conductive shoes. Also, maintaining a high degree of relative humidity, between 60 and 70 per cent, helps to eliminate static.

You might be interested in referring this question to the manufacturer of the clothing which you

are using, and find out what he has to say about it. This might encourage the manufacturer to give additional study to the problem.

The only possible recommendation appears to be to avoid the use of synthetic fiber clothing in the presence of explosives or highly flammable vapors and gases.

## Around the Compass

—From page 10

with no accident records. John O. Moore, director, Automotive Crash Injury Research, Cornell Medical College, was the principal banquet speaker.

## Summer Safety Shows

Designed to promote family vacation safety among Du Pont Chambers Works employees, gala summer safety shows commenced May 16. Twenty-eight individual shows, all with a definite safety theme and featuring employee

participation, were developed by workers in various areas throughout the Deepwater, N. J., plant. Of the 7,000 employees, each was expected to see at least two of the shows of his own choosing.

The program was designed by the Chambers Works Safety Section to help employees—and, through them, their families—combat hazards at work, at home, on the highways, and in the water. During the two-week period the shows were given, local editors, educators, highway safety officials, state and local police were invited to view the programs.

## Virginia Safety Conference

Safety leaders from Virginia met in Roanoke May 24-25 for the 22nd Annual State-wide Safety Conference of the Virginia Safety Association. Governor Thomas B. Stanley served as general chairman. The Conference was termed as one of the most outstanding in its 22-year history.

Conference sessions included commercial vehicle, industrial, home, school and college, law enforcement, marine, public utilities, railroads and others. Among the principal speakers were Samuel McKay, Jr., director of safety activities, Bell Telephone Company of Philadelphia, and James D. Arrington, Collins, Miss., banker, editor and humorist.

## New Traffic Safety Booklet

*Am I My Brother's Keeper?* a booklet on traffic safety written by a member of the Fort Worth Chapter, ASSE, has been such a successful activity that supplies of the booklet are being ordered faster than the chapter can have them printed.

The booklet, 4 by 5¾ in., 40 pages with separate cover, was prepared to accompany specialized suggestions for use of traffic safety at conventions, club meetings, church services, and educational and professional gatherings. Four main sections of the book cover safe driving tips, accident statistics, thoughts on the moral aspect of traffic safety and Biblical references outlining "Ten Commandments of Good Driving."



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## Puerto Rico

—From page 84

Labor leaders, employers, government officials, civic groups, and youth organizations (including Future Farmers of America, Future Homemakers of America, Boy and Girl Scouts, 4-H Clubs, and Police Athletic Leagues) played important parts in the activities.

The organizational meeting of the Council of State Agencies for the Prevention of Accidents was held in the office of the Secretary of Labor. The following are members of this Council:

Fernando Sterra Berdecia, Secretary of Labor; Dr. Juan A. Pons, Secretary of Health; Ramon Torres Braschi, director of the Personnel Office; Roberto Sanchez Vilella, Secretary of Public Works; Luis Rivera Santos, Secretary of Agriculture and Commerce; Mariano Villaronga Secretary of Public Instruction; Rafael V. Urrutia, executive director of Puerto Rico Aqueduct and Sewage System Authority; Sol Luis Descartes, executive director of the Puerto Rico Water Resources Authority; Teodoro Moscoso, manager of the Economic Development Administration; and Dario Goitia, president of the Mayor's Association.

The success obtained in Puerto Rico though this campaign is a good demonstration of the interest, dedication and enthusiasm of the Puerto Rican people in matters of occupational safety.



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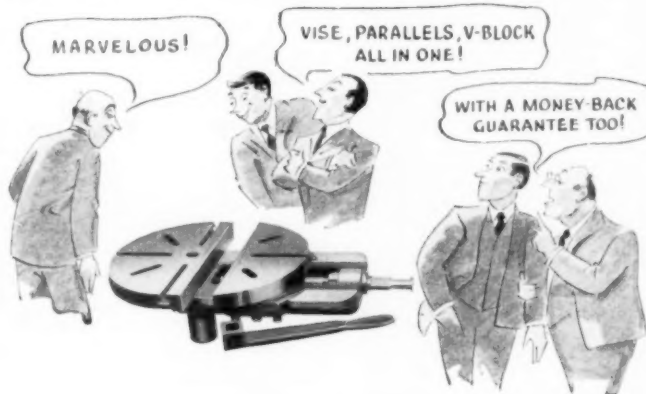


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## Atomic Safety

—From page 21

close cooperation with industrial users of radiation, and reliance on self-regulation.

The New Jersey philosophy is in accord with the attitude of the Subcommittee on Regulation of Radiation Exposure of the National Committee on Radiation Protection. The Subcommittee's 1954 Interim Report points to the acute shortage of trained radiation personnel available and urges the states to avoid overambitious, detailed regulations at the start.

The actions and approaches taken by the AEC and various state and local agencies indicate several substantial problems which will have to be resolved in the relatively near future. The first two involve questions of jurisdiction and enforcement and are in some ways inter-related.

The Atomic Energy Commission is specifically authorized under Section 161 of the Atomic Energy Act of 1954 to establish rules and regulations governing the possession and use of special nuclear material, source material, and by-product material in order to protect health and to minimize danger to life and property.

It appears reasonably clear that AEC health and safety regulations will establish at least minimum standards for AEC-licensees which the states are without power to modify. It is not unlikely, however, that a state may establish more severe standards for industrial concerns operating within its borders and it remains an open question whether a state may in effect interfere with activities licensed by the AEC by insisting upon compliance with stricter safety standards.

There is also a substantial question as to the applicability of such regulations to non-AEC-licensed activities, such as commercial operation of an electron generator.

Realistic enforcement of federal and state regulations, however, will be most difficult. The great shortage of trained radiation safety officers makes it virtually impossible for either the AEC or the states to police radiation regulations effectively at this time. The

AEC is clearly understaffed for this purpose. It has, along with a handful in industry, almost all of the relatively few top-flight men in the field. Few, if any, states can find many such men within their borders, let alone attract them into state service.

What is called for is not disputes over jurisdiction but a concerted, cooperative effort among the AEC, state and local governments and agencies, and industrial concerns active in the field.

The AEC should, in cooperation with such organizations as the National Committee on Radiation Protection, establish certain general standards, such as permissible levels of radiation, waste disposal regulations, personnel monitoring programs, and regulations respecting warning signs, storage, containers, and the like. The AEC should then take the lead in establishing a program of cooperation with the states looking to local enforcement of these general regulations.

Local enforcement makes sense. Existing state agencies have en-

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forcement machinery and techniques at their disposal and are equipped to deal with local variables. For example, in enforcing general waste disposal regulations, it may be safe to permit the disposal of certain wastes in a particular geologic fault. A local regulatory agency, not a federal agency, should properly handle this type of problem and should make the determination that disposal in the particular case is safe practice.

There is considerable precedent for this type of approach. Regulations of the U. S. Public Health Service are enforced by the states to a certain extent. Another case in point is the Coal Mine Safety Act which empowers the Bureau of Mines to inspect coal mines for health and safety purposes. This Act provides for cooperation with state agencies and for the utilization of the services of such agencies in connection with the administration and enforcement of the Act.

In this connection, attention is directed to Section 161f of the Atomic Energy Act of 1954 which authorizes the AEC, with the consent of the agency concerned, to utilize or employ the services or personnel of any government agency or any state or local government. The AEC should use this authority to the fullest extent practicable.

States should cooperate by passing uniform legislation permitting this type of cooperation and generally tying their administrative regulations in with those of the AEC. This is a field clearly adapted to uniform state legislation and regulation. Many states have been awaiting the lead of the AEC in this area and would be likely to follow an approach of this type. Both the New England Committee on Atomic Energy and the National Committee on Radiation Protection have recommended a standard code of safety and health regulations dealing with use of atomic energy materials.

As the New England Committee has pointed out, "it would be most unfortunate if the industry were hampered by improperly restrictive regulations."

The individual states should

also pay serious attention to the solution of intra-state jurisdictional and regulatory problems and of discrepancies between their regulations and federal regulations. Perhaps the best method is to have an atomic energy coordinator or an atomic energy committee advising the governor and helping to coordinate state activities in this field. Such a committee should consist of legislative and administrative leaders, as well as business people and others actively interested in atomic energy. It should be given broad authority to consider problems as they arise and to recommend coordinated action and solutions.

### The Challenge to Industry

Industry can and must play a major part in this federal-state cooperative effort. Up to now industrial participation in legislative and regulatory developments has been minimal.

Some have suggested that the reason is an attempt on the part of industry to avoid creating an impression in the public mind that there is a real problem—despite the obvious fact that one serious accident can arouse substantial public apprehension.

Others have pointed out that labor unions might possibly attempt to use health and safety problems as a weapon in collective bargaining. I suspect the real reason has been a preoccupation with other types of problems and a lack of awareness of the rapidly moving developments in this field—particularly on the state and local level.

What can industry do?

Industrial leaders should actively participate in the consideration of state and local legislation and regulations and should take the lead in urging the sort of state action which will lead to effective cooperation among the AEC, the states, and companies working in the atomic energy field—perhaps along the lines suggested above.

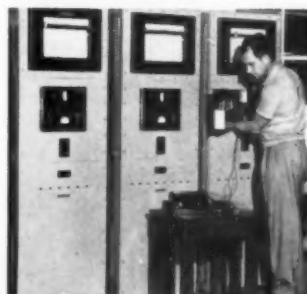
The general problem of enforcement and lack of qualified radiation safety personnel is one which industry must help to solve, lest enforcement be left in the hands of unqualified state em-

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Industry's participation has thus far fallen far short of what is needed. It is to be hoped that this will not continue and that industry will, in its own self-interest, actively take up the challenge presented.

Nevertheless, several precautions are closely observed. Once every four hours, commercial vacuum cleaners take air samples. Regular "radiation casualty drills" are held and every crewman and visitor wears a badge containing film showing how much radiation he has absorbed. The average dose per man is 170 milliroentgens a year, compared to the permissible limits of 300 per week set by the Atomic Energy Commission for its employees.

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THIS DEPARTMENT HAS WORKED 246 DAYS WITHOUT A LOST TIME ACCIDENT EXCEPT ONE OCCASION

WRITE FOR LATEST CATALOG SHOWING SAFETY SIGNS FOR ALL PURPOSES

**STANDARD SIGNS, INC.**  
3190 E. 65TH ST., CLEVELAND 4, O.

# For a More Successful Poster Program



JUMBO POSTER FOR SEPTEMBER 1956

The Jumbo poster, issued monthly, is designed for outdoor use and is available to members on annual subscription but is not stocked. Its actual size is 9' 11" by 11' 8".

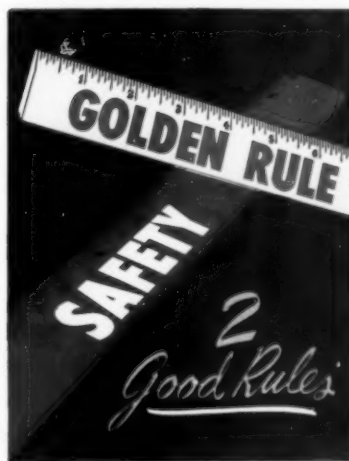
## SAFETY BANNER FOR SEPTEMBER, 1956

Here is the attention-getting, monthly cloth banner. Available in two types—indoor and outdoor—both are identical in size (10 feet long by 40 inches high), have the same general message and multi-color design. Indoor type is of sturdy drill with grommets for easy hanging, while the outdoor banner is of extra heavy drill, with wind vents, and has strong stitched-in rope for durability.

**P**OSTER program aids miniaturized on this and the following pages are **NEW**—shown here for the first time. Those illustrated in one color are actually printed in two or more colors.

For maximum variety, refer to the 1956 Directory of Occupational Safety Posters. There you'll find 756 top-notch selections on a great variety of subjects.

Copies of the Directory are available at 50 cents each—write Membership Service, N.S.C.



0708-A

8 1/2 x 11 1/2

This new four color poster is illustrative of the 72 four color posters shown in the 1956 Poster Directory.



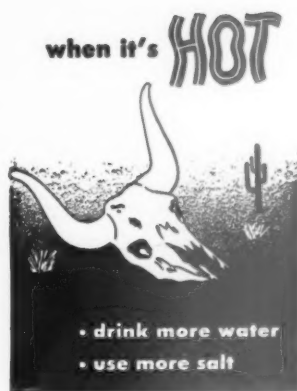
NATIONAL SAFETY COUNCIL

Electrotypes of poster miniatures on this page are not available, nor can person inserts be supplied.



Posters below are printed in two or more colors

(Available only in sizes indicated)



NATIONAL SAFETY COUNCIL  
0845-C 25x38



NATIONAL SAFETY COUNCIL  
0576-A 8½x11½



NATIONAL SAFETY COUNCIL  
0779-B 17x23



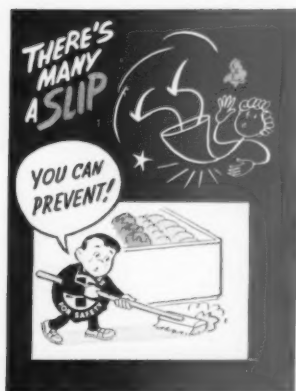
NATIONAL SAFETY COUNCIL  
0739-B 17x23



NATIONAL SAFETY COUNCIL  
0765-B 17x23



NATIONAL SAFETY COUNCIL  
0748-B 17x23



NATIONAL SAFETY COUNCIL  
0817-A 8½x11½



NATIONAL SAFETY COUNCIL  
0549-A 8½x11½



NATIONAL SAFETY COUNCIL  
0569-A 8½x11½

Electrotypes of payroll inserts can be furnished in all poster illustrations shown above.

Posters below are printed in two or more colors

(Available only in sizes indicated)



PRINTED IN U.S.A.  
NATIONAL SAFETY COUNCIL

0764-A

8½x11½



PRINTED IN U.S.A.  
NATIONAL SAFETY COUNCIL

0768-A

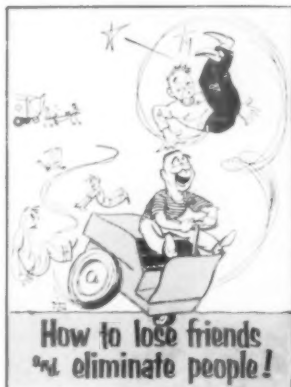
8½x11½



PRINTED IN U.S.A.  
NATIONAL SAFETY COUNCIL

0717-A

8½x11½



PRINTED IN U.S.A.  
NATIONAL SAFETY COUNCIL

0568-A

8½x11½



PRINTED IN U.S.A.  
NATIONAL SAFETY COUNCIL

T-0752-C

25x38

T-0753-A

8½x11½



PRINTED IN U.S.A.  
NATIONAL SAFETY COUNCIL

V-0803-A

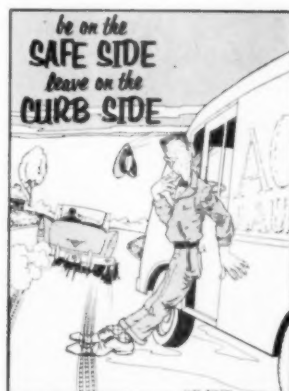
8½x11½



PRINTED IN U.S.A.  
NATIONAL SAFETY COUNCIL

V-0800-A

8½x11½



PRINTED IN U.S.A.  
NATIONAL SAFETY COUNCIL

V-0801-A

8½x11½



PRINTED IN U.S.A.  
NATIONAL SAFETY COUNCIL

V-0802-A

8½x11½

Electrotypes of payroll inserts can be furnished in all poster illustrations shown above.

Posters below are printed in two or more colors

(Available only in sizes indicated)



Office 1-7A 8½x11½



Office 1-2A 8½x11½



Office 1-11A 8½x11½



PTR 1-4A 8½x11½



PTR 1-3A 8½x11½



PTR 1-1A 8½x11½



MRN 1-3A 8½x11½



MRN 1-8A 8½x11½



MRN 1-7A 8½x11½

Electrotypes of payroll inserts can be furnished in all poster illustrations shown above.

## Early Detection

—From page 39

is the rate-of-temperature-rise that actuates the detector, not a fixed temperature that must be reached.

Like the smoke-detecting equipment, rate-of-temperature-rise installations can incorporate devices which cause any desired type of alarm to sound, turn off or on or close apparatus, and provide a means of powering the fire detector from batteries.

Another fire-detecting device comprises a fixed temperature thermostat. These are installed in rooms and set for some specified temperature well above any normal temperature the space is likely to experience. When the room temperature reaches the thermostat temperature an alarm is sounded. Again auxiliary equipment is available with fixed temperature systems similar to that described for the other fire detecting devices.

There is also a fire-detecting device which uses a combination rate-of-temperature rise and fixed temperature thermostats. Should the temperature rise be too gradual to actuate the rate-of-rise portion of the detector, actuation will take place when a predetermined temperature is reached. The device automatically resets itself and does not require replacement of any parts.

A variation of the fixed temperature thermostat theory is sometimes used in connection with automatic water sprinklers. Rather than having a thermostat, you depend on the fixed temperature operation of water sprinkler heads. When they go off, a flow of water starts through their supply pipes. This flow of water is detected by a device and causes an alarm to sound.

Photoelectric cells also are used to detect fires directly. The device is ceiling mounted so as to permit unobstructed scanning of the entire area it is desired to protect. If a fire occurs, the "flicker" (infra red light at a specified number of cycles per second) acts on the photoelectric cell which causes a control panel to sound an alarm.

Installation of any of the types of fire detection devices which have been mentioned can bring substantial reduction in insurance premiums from underwriting companies and rating bureaus. However, be sure that any of this equipment you may consider has Underwriters' Laboratories approval and meets requirements of state laws for fire detection equipment for the class of building you desire to protect.

## Melting Scrap with Plastic Causes Toxic Fumes

A PLANT specializing in the smelting and refining of non-ferrous metals recently experienced an accident when melting scrap containing plastics. The material was being charged to a kettle in the customary manner and the metal had started to melt.

At this stage copious white fumes with a very sweetish odor were generated. As soon as the mass was completely melted, the plastic constituents burst into flame and burned, thus raising the temperature of the molten metal to an excessive degree.

From this time on, all possible precautions were taken, and fortunately no one was burned, although some damage to equipment resulted. The working area was cleared and a man equipped with an approved gas mask removed the burning material from the surface to a safe area.

Plastic parts and sections of all types and descriptions are becoming more and more prevalent on scrap materials handled by the secondary industry. It is therefore extremely important that careful inspection be made of all scrap in order to prevent a repetition of this type of accident.

Some plastic materials, when melted, generate toxic fumes, and precautions must be taken when handling and treating scrap containing such contamination. Needless to say, gas masks of approved capacity and design should be available in case accidents of the above description do occur.

Some girls today don't care if a man fits the bill, so long as he foots it.

## LOCK OUT DANGER



to workers in your plant with "Lock-Out" safety device for use on switches, fuse boxes, and similar controls. Stops all possibility of starting equipment when maintenance or repair men are working on it.

Holes permit six different men to put locks on a switch. Machine cannot be operated until last workman removes his lock.

"Lock-Out" devices are coated with heavy vinyl plastic for top insulating qualities. Size 4 1/4" x 1 1/2".

**OSBORN MFG. CO.**

WARSAW

INDIANA

## ★ The Positive Ladder Safety Device



It locks automatically—instantly—holds.

### SAFETY DEVICE FOR LADDERS

Prevents death and injuries from falling.

Automatic: Positive. Will catch workman if he starts to fall even if unconscious. Inexpensive. Easy to install. No upkeep. Clamps to any rung ladders, peg ladders, pole or frame. No welding or cutting. Simple to operate: Requires no attention from climber. Notched rail hot dipped galvanized. Entire equipment rust and corrosion proof. In use throughout country and abroad for approx. 8 years.

Patented. Manufactured only by

**SAFETY TOWER LADDER CO.**

1024 Burbank Blvd. P.O. Box 1852  
BURBANK, CALIFORNIA

★ ★ ★ ★ ★ ★ ★ ★





**Setol Cleanser** HAS WHAT IT TAKES  
TO MACHINE-SCRUB OILY FLOORS—

***Faster  
cleaning action!***

### Cuts operating time of the scrubbing machine



Finnell 213P  
Scrubber-Vac

Because *Setol* is specially compounded for the greater speed of *combination-machine-scrubbing*, it must and does work faster than average alkaline cleansers. *Setol* saponifies and emulsifies grimy oil and grease *instantaneously*. The wetting agent in *Setol* floats the oil for fast, easy, and *thorough* removal by the vac of a *combination machine* or with a separate vac unit. And because *Setol* stays fast-acting longer—does not spend its strength quickly as do ordinary oil and grease solvents—less is required to clean a given area. Thus *Setol* saves on materials and, by speeding the cleaning process, cuts operating time of the scrubbing machine . . . reduces labor costs . . . and saves on brushes. Best of all, *Setol* gets floors *oil-free clean!* Also acts as a disinfectant (contains pine oil), and leaves a pleasant, clean aroma.

Applies cleanser, scrubs, and picks up — in **ONE** operation!



- A constant, fast-acting cleanser for machine-scrubbing cement, wood, wood block, metal, stone, and terrazzo floors
- Consistent use on cement floors prevents cement dusting . . . provides a finish that helps seal out waste materials

For demonstration, consultation, or literature, phone or write nearest *Finnell Branch* or Finnell System, Inc., 2207 East Street, Elkhart, Indiana. Branch Offices in all principal cities of the United States and Canada.

**FINNELL SYSTEM, INC.**

*Originators of Power Scrubbing and Polishing Machines*



BRANCHES  
IN ALL  
PRINCIPAL  
CITIES

# NEW SAFETY EQUIPMENT

Further information on these new products may be obtained by writing direct to the manufacturer or by circling the corresponding item number on the Reader Service Postcard.



## Air Sampler

A new type of instrument which allows precise measurement of airborne contaminants taken from large samples of air is used to collect these contaminants for weighing and analyzing in connection with industrial hygiene or air pollution problems.

A feature of the instrument is an automatic flow control which compensates for changes of filter resistance caused by collected material. Automatic control of air flow rate



is provided by a compensating damper in a by-pass duct for unfiltered air. Filtered air enters a plenum chamber and passes through a fixed orifice in a spring-loaded diaphragm plate. As filter resistance increases, pressure in the plenum chamber decreases, thus releasing the diaphragm plate to close a switch that starts the by-pass damper motor. The damper reduces the by-passed air flow, thereby increasing suction through the filter. Changes in supply voltage also cause damper operation to increase or decrease by-passed air flow and thus maintain constant air flow through the filter.

The sampler is a rugged instrument, easy to operate, with no gauges to watch and no adjustments. A wide variety of filter media can be used without knowledge of their specific resistances. Filters can be cut from bulk material.

Any of three flow rates may be selected by the user: 15, 30, and 50 cfm. It operates from a 110-volt, 60-cycle power supply.

Mine Safety Appliances Co., 201 N. Braddock Ave., Pittsburgh, Pa. (Item 1)

## Materials Handling Pallet

This materials handling pallet, weighing only 28 lbs., is molded of polyester resins reinforced with fiberglass to support 3,000 lbs. of working load with a high safety factor. The high strength at low weight is combined with resistance to wear, abrasion and impact. Resistant to oils, grease, acids and alkalies, the polyester resins molded into the new pallet have a surface that is easily cleaned. Molding the pallet of reinforced plastic eliminates the need for nails or fasteners which can loosen and cause injury. The strength of the reinforced plastic construction limits deflection on an overload of 5,000 pounds with the pallet supported on forks. This flexibility and resilience permits rough handling with safety and without the pallet cracking and



splintering. Strength and rigidity increase at sub-zero temperatures and the pallet is not affected by rot or rust. Various colors are available, and the high strength-weight ratio is obtained by sandwich type construction with high strength facing and lightweight core.

Firmaline Products, Inc., Midland Park, N. J. (Item 2)

## Exhaust Silencer

This exhaust silencer is intended for use wherever extra quiet operation is desired on the manufacturer's cabinet-type dust collectors. The silencer is available in five models to fit the exhaust openings on the 50, 60, 70 and 80 series and the Model 122 collectors.

The three smaller models are made of 20-gauge steel and extend 30 in. above the top of the collector to further reduce the noise effect; the larger two models are built of 16-gauge steel and extend 36 in. All five are rectangular in cross-section and are interlined with one inch closed cellular vinyl foam that is said to absorb approximately 80 per cent of the noise without restricting air flow.

All silencers are given a baked-on wrinkle finish to match the cabinets. They can be readily attached to new units at the factory or to collectors now in use.

Dept. KP, Torit Mfg. Co., 287 Walnut St., St. Paul 2, Minn. (Item 3)



## Life Preserver Vest

This quick-release life preserver vest is designed to float the wearer in a vertical position so that his head and shoulders are above water. The front pads of the vest raise up in the water to catch under the wearer's chin and the back pad of the vest raises to support the back of the head out of water.

The vest is equipped with a snap at the bottom front which is to be attached to the man's belt or belt loop, so that it cannot float off. However, the fasteners and the snap are attached to the vest with an

aluminum rod, and if the wearer becomes trapped under a barge, between two objects, etc., and must get rid of the life vest to escape, he pulls upward on a lace attached to the rod, which draws out the rod and completely disengages all fasteners.

The vest is not bulky, and fits loosely and is buoyant. It is unaffected by most oils, acids, and perspiration and will not sustain flame.



The vest cloth is available in two colors—bright orange or forest green, and scotchlite patches are standard. The entire vest can be laundered.

Safety First Supply Co., 425 Magee St., Pittsburgh 19, Pa. (Item 4)

### Fire Pump

This fire pump is a versatile hand extinguisher for fighting Class A fires where only clear water is used. The 5-gallon tank carries slung on



the back and easy pumping throws a 30 ft. stream or the nozzle can be adjusted to spray. The pumps are particularly adaptable for roof, building, rubbish, grass, field and many other types of fires.

D. B. Smith & Co., Utica, N. Y. (Item 5)

### Flattened Strand Wire Rope

An extra high strength flattened strand wire rope that is said to be 15 per cent stronger, is called Imperial Red-Strand Wire Rope.

This additional strength is said to have a number of advantages. Greater than normal temporary loads can be handled without having to install a larger rope with the accompanying trouble and expense of new sheaves and other possible equipment changes. The manufacturer

claims that it is sometimes possible to do a safe and satisfactory job with a smaller diameter rope than would be otherwise needed. Possible applications for this type of rope are in the logging industry for chokers and arch lines, and for use as a drag rope on a dragline excavator. The rope is recommended for use in the oil well drilling industry.

The rope is fabricated with steel cores.

H. K. Porter Co., Inc., 342 Madison Ave., New York 17. (Item 6)

### Free Floating Retractable Stop

An improvement, called the free floating retractable stop, has been made on this manufacturer's one-man bridge ramp and is said to eliminate breakage or bending of the ramp's locking device and stops. When the ramp is not in use, the self-levelling floating arms lie flush with the platform. Therefore, the ramp's weight is distributed over its entire surface instead of on the ends of the stops.

A fork lift truck transports the bridge ramp to location where the free-floating retractable stops lock it securely.



The bridge ramp is said to have a load capacity of 15,000 pounds, and is produced in a variety of shapes and sizes to accommodate various spans of gap and height differentials for efficient railroad car and truck loading.

Elizabeth Iron Works, Union, N. J. (Item 7)

### Pint-Size Fire Truck

This pint-size fire truck for fighting fires inside industrial plants is capable of negotiating narrow factory aisles.

The truck can go anywhere an ordinary plant lift truck can go, and is only 5 ft. 8 in. high.

Dry chemical, carbon dioxide and water are provided as extinguishing agents, and the truck can carry many other fire fighting tools. Available accessories include ladders, utility bar, light, hose, portable fire extinguishers and extra nozzles, all mounted with panic-proof quick release brackets. There is storage room on the truck for fire blankets, boots,

air masks, coats and a first aid kit. A flashing red light can be mounted on top of the cabinet.

Ansul Chemical Co., Marinette, Wis. (Item 8)

### Gasoline-Resistant Tank Coating

This gasoline resistant coating is for use inside metal or concrete storage tanks. The coating is laid down for an emulsion which is said to eliminate toxicity and fire hazards of solvents.

Tankite, Industrial Finishes Div., The H. B. Davis Co., Bush & Severn Sts., Baltimore 30, Md. (Item 9)

### Vacuum Cleaner

This vacuum cleaner has a transferable head and an outside bag. The motor is detachable for use as a strap back vacuum or blower. A



feature of the vacuum is the large air volume and high speed, and it is available with a 55-gallon tank and with or without a four-wheel ball-bearing dolly.

Hild Floor Machine Co., Inc., 740 W. Washington Blvd., Chicago 6. (Item 10)

### Impaction Safety Bar

This heavy duty impaction safety bar is said to have built-in safety design. The cutting edge of the

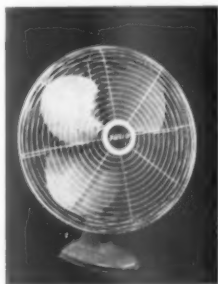
chisel is 1 1/4 in. wide, and is forge hardened for rough use. The operator places the chisel where he wants to make the penetration, and the reciprocating motion of the weighted handle drives the cutting edge with minimum effort, and increased safety. The unit weighs 18 lbs., and reportedly eliminates the need of a pry bar on service trucks.



Engineers Tool Co., 116-118 W. Main St., Lake City, Iowa. (Item 11)

### Fan Safety Guard

This "Super Safety" guard for a 16 in. oscillating fan is designed to comply with all state and insurance safety regulations where fans are used in public places, factories, etc. The 2-piece guard is made of wire rings on 1/2-in. centers and finished in bright cadmium. The deep pitched



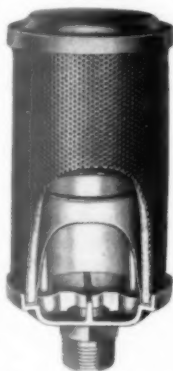
16 in. aluminum blades move large volumes of air either for oscillating or straight blow use. There is a choice of three speeds—high/1520 cfm, medium/1210 cfm, or low/940 cfm.

Model 167-SS is listed and approved by Underwriters' Laboratories.

Fasco Industries, Inc., Rochester, N. Y. (Item 12)

### Air Exhaust Muffler

The "Atomuffler" is a muffler for air-operated equipment, and features a new 4-port deflector which, combined with an internal acoustical resonator, gives uniform air dispersement with more effective impingement, resulting in better noise cancellation and improved air flow. The 4-port deflector disperses air outward in a lateral-radial pattern reducing velocity to a minimum, and eliminating oil fog and water spray.



A newly engineered disseminator with improved air flow characteristics permits greater volume air flow, thus maintaining equipment operating efficiency.

The "Atomuffler" is available in sizes from 1/8 in. to 2 in. N.P.T.

Allied Winton Co., Inc., P. O. Box 2770, Dept. Y-6, Cleveland, Ohio. (Item 13)

### Metal Dock Plate

A new line of light-weight dock

plates for use on truck docks only, is made of high strength magnesium alloy.

Nine standard sizes are available, from 36 in. to 72 in. wide, and from 24 in. to 48 in. long. Load ratings are from 1,800 lbs., to 4,800 lbs. axle load.

Features of the dock boards include: positive position stops to securely lock the board in place between the dock and the carrier; beveled plate edges to minimize load jar and prevent load loss; crowned construction to prevent hang-up of low underclearance equipment, and provide safe, smooth crossover.

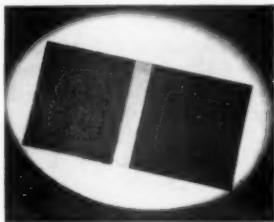


According to the company, the plates meet the need for a low cost, light metal dock plate, engineered to deliver dependable, economical service.

Magline, Inc., 1900 Mercer St., Pinconning, Mich. (Item 14)

### Floor Safety Finish

This anti-skid coating for industrial floorings is brushed on like paint. Called "Sono-Grip" the new safety material gives a slip resistance to wood and concrete floors, steel treads and metal decks. It can be effectively used to resurface worn steel matting and is resistant to gasoline, alcohol, oil, grease and many types of acids. It is said to provide an anti-slip protection whether the surface is dry, wet or oily.



One or two coats will cover a properly prepared surface. It contains a fine, sharp aggregate which gives it high slip-proofing qualities. The manufacturer claims it features unusual elasticity and bonding

characteristics, and adheres well to smooth surfaces.

"Sono-Grip" is available in red, green, yellow and gray.

Building Products Div., L. Sonneborn Sons, Inc., 404 Fourth Ave., New York 16. (Item 15)

### Heavy Duty Step Ladder

This heavy duty step ladder is designed for extra heavy duty use by plasterers, plumbers, and maintenance crews in industrial plants. The "Super/Craft" is said to exceed or equal specifications of the safety code of the American Standards Association. The ladder has over-size front rails and rear legs, which allow it to withstand considerable abuse without weakening.



Other features include heavy duty horseshoe hinge, zinc-plated hardware, and a heavy duty top bracket. All steps are doubly supported by truss rods and knee braces; top and bottom rungs are supported by pressed steel braces, with an intermediate set on 10 ft. and 12 ft. sizes.

The ladders are available in 4 ft. to 12 ft. sizes.

Patent Scaffolding Co., Inc., 38-21 Twelfth St., Long Island City, N. Y. (Item 16)

### Ground Detector and Fault Locator

Model No. 58 Brunt Faultfinder is described as a combination ground detector and fault locator for use on normally ungrounded power circuits while the circuits are energized.

The manufacturer states that it is especially designed for use in plants having several distribution centers of widely separated voltages. The Faultfinder can be used on voltages from 120 to 600.



The new model is housed in a 16 gauge steel and aluminum cabinet, 15x8x7 in.

The unit's pulsating, audible signal is distinguishable from background plant noises. Its strength permits the use of the instrument on circuits buried in the earth or in concrete, or on overhead circuits without the necessity of placing the exploring coil on the conduits or cables.

Parr Mfg. Corp., 48 Hale St., Cranford, N. J. (Item 17)



## Respirators

A new group of respirators has been developed for operations having combined respiratory hazards.

All four of the respirators protect against inhalation of all non-volatile airborne particulate matter in the form of dusts, sprays, mists, and fumes. Each respirator in addition gives protection against specific volatile dusts, sprays, mists, and fumes, and also against specific vapors and gases.

R5561 gives added protection against airborne particulate composed of volatile organic substances and against organic vapors.

R5562 also gives protection against acid gases and airborne particulate that decompose or hydrolyze to evolve acid gases.



R5563 protects against inhalation of organic vapors, acid gases, and airborne particles that decompose or hydrolyze to evolve vapors and gases of an organic and acidic nature.

R5564 protects against inhalation of ammonia and other alkali gases, and volatile airborne particulate that give off alkali gases.

The filter-adsorbent elements employed in the respirators are in the form of cartridges that are rugged in construction and easy to replace.

American Optical Co., Safety Products Div., Southbridge, Mass. (Item 18)

## Skin Protective Ointment

Silconex (77% silicone) has been developed as an almost universal skin protective ointment to prevent contact dermatitis in a large variety of industrial operations. The product is said to be the highest in silicone content and contains only 23 per cent of inert mineral filler. It protects against water-dissolved material and organic solvents and oil—solvent—water—chemical mixtures.

It resists exposure to strong acids, alkalis, oxidizing agents, salts, detergents, antibiotics, protein solutions, allergens and other materials, whether in water or organic solution. It has been effective in protecting against the exposure encoun-

tered in work with the drilling muds in oil fields. It is unaffected by the alkali, oil, water, salt and solid content of these muds.

Silconex is packaged in 1, 3.2, and 5 oz. tubes and in 1 lb. jars.

Hygiene Research, Inc., 684 Broadway, New York 12, N. Y. (Item 19)

## Centrifugal Dust Collector

A mechanical collector of the multiple tube type incorporating a new design principle to increase the gas handling capacity has been announced. The "Cyclo-trell" has a higher collection efficiency and a greater gas flow for a given pressure drop than has been previously obtainable in conventional multiple tube collectors. The greater capacity is said to mean fewer tubes per unit are needed, resulting in a lower total cost for a given capacity and efficiency.

The unit consists of a series of cyclone tubes arranged in parallel, and depends on centrifugal force for its operation. The incoming gas enters the chamber under pressure, and flows into the lower set of inlet tubes which are attached to the lower header plate and are of slightly larger diameter than the upper outlet tubes. Specially designed inlet vanes at the mouth of the inlet tubes set up a circular motion in the gas so that suspended particles



are forced downward and outward against the wall of the inlet tube. Cleaned gas is first forced toward the center of the collector tube and then upward and into the outlet tube by the pressure differential.

The design of the aerodynamically shaped inlet vanes provides a faster and smoother gas flow.

The use of the aerodynamically shaped vanes minimizes gas turbulence and increases the centrifugal force.

Research-Cottrell, Inc., Bound Brook, N. J. (Item 20)

## Rough Finish Coated Gloves

Rubber and coated fabric work gloves with a rough finish provide a positive grip and withstand oils, acids and solvents.

The coating combines a vinyl base and Sureseal rough finish, affording resistance to chemicals, cutting, snagging and abrasion. Fingers are curved for hand comfort and the wing thumb construction eliminates side seams and overcomes tearing out at the thumb.



The gloves are available with coated palm and knit wrist or fully coated with knit wrist, 12-in. gauntlet or safety cuff.

Surety Rubber Co., Carrollton, Ohio. (Item 21)

## Non-Adherent Absorbent Dressing

Designed for use in industrial first aid, this non-adherent, absorbent surgical dressing will not stick to wounds or burns, and keeps them dry.

The dressing is a pad of highly absorbent, non-woven cotton material with a thin coating of finely perforated plastic bonded to it. Discharge from the wound passes through the perforations and is absorbed by the cotton material. The discharge cannot flow back into the wound, as the perforations function as "one-way valves." The dressing can be removed from the wound without soaking, and rupturing the healed surfaces.

It is available in the form of 2 in. and 4 in. compresses, and as an 8x10 in. compress.

Davis Emergency Equipment Co., 45 Hallock St., Newark 4, N. J. (Item 22)

## Steering Aid

Materials handling vehicles, may now be equipped with a combination steering wheel and automatic clutching device. The manufacturer claims that the chances of accidents to operators of industrial trucks and tractors, lift trucks, and other ve-



hicles with small turn wheels are lessened because of the "no kick-back" feature of the steering device. The working mechanism of the hub assembly eliminates shock and "kick-back" that frequently catches an operator unaware and breaks a bone

or severely bruises a wrist or hand.

The steering aid holds the steering gear stationary, no matter how much "kick-back" the guide wheels get from hitting bumps, obstacles on the floor, stacks, or building columns. It turns the wheels but the obstacles can't. The unit automatically releases when the steering wheel is turned, so normal steering results.

The steering aid also functions as an "automatic pilot" holding it on course over bumps and obstacles. The unit is self-contained and has no hydraulic or electrical mechanism. It is permanently lubricated.

Kosch Mfg. Co., Columbus, Neb. (Item 23)

### Floor Maintenance Products

These two floor maintenance products are formulated especially for commercial and industrial use. Floor Show, is an anti-slip, waxless floor polish. It is completely synthetic, and contains no wax, lacquer, varnish or sticky plastics. It offers self-leveling qualities, is easy to apply, and provides a brilliant gloss without buffing. The finish resists water spotting and does not discolor with age. It is said to offer high anti-slip properties.



Heavy Duty Stripper is a blend of ingredients specifically developed to remove wax, resin finishes and dirt from all types of floors by safe, labor-saving chemical action. The stripper removes films of wax and dirt and leaves no dulling film. It is also useful for cleaning walls and woodwork.

Sanitary Maintenance Div., R. M. Hollingshead Corp., Camden 2, N. J. (Item 24)

### Fire-Resistant Cushioning Material

Armofam is a flexible polyurethane foam cushioning material and is flame resistant.

Temperatures up to 160° F. do not affect the characteristics, and up to 300° F. discoloration occurs without loss in properties.

Armofam has no odor and resists solvents, abrasion, vermin, and sliding. It can be washed or dry cleaned. The product is very strong and a

pull of 9 to 11 lbs. is required to tear a half inch piece, while it takes 12 to 15 lbs. per square inch to pull it apart. When tacked to a piece of wood, armofam will withstand a pull of 13 to 15 lbs.

Armour & Co., Alliance, Ohio (Item 25)

### Combination Projector

Model V-1000 C projector may be used for 35 mm. filmstrips and 2x2 in. slides. It projects images to large audiences with great clarity.

The 1,000 watt projector is cool in operation because a new system of



pressurized air cooling which features a vertical fan position, draws cool air from the front of the projector, passing it first over the film plane and then the condensing lenses, and finally over the lamp.

The model handles both single and double frame filmstrips for vertical and horizontal projection, and 2x2 and bantam slides. The filmstrips can be threaded in a short time, and the take-up assembly is built on to the filmstrip attachment.

The projector is equipped for individual front leg level-control.

The model is equipped with 5 in. F/3.5 professional lens. A 5 in. F/2.8 lens is available.

Viewlex, Inc., 35-01 Queens Blvd., Long Island City 1, N. Y. (Item 26)

### Wet-Dry Vacuum Cleaners

Eight different models of these new vacuum cleaners are available and are in 3, 9, 12, 9/12 and 55 gallon capacities. Each vacuum can be used for wet or dry pick-up on large or



small areas. They can also be used for cleaning dust and dirt from venetian blinds, radiators, pipes, coils, furnaces, etc., and for special dust problems such as highway traf-

fic, smoke or other causes. The specifications for the vacuums include: 5/8 to 1 1/2 h.p.; choice of by-pass, ventilated or external bag type motors; blue or white enamel or porcelainized finish, or stainless steel tanks; free-wheeling 4-caster base plate, push or pull type dollies with tool baskets; and a choice of rubber, neoprene or stretch-type hoses.

The American Floor Surfacing Machine Co., Toledo 3, Ohio. (Item 27)

### Removable Paint

This removable paint is for use during emergencies and can be completely removed after the emergency has passed.

Called "Temline," the paint is available in three colors, white, yellow and gray, and dries in 15 minutes or less. The removal operation takes about 15 minutes. It is designed for changing lines for traffic lanes, storage warehouse space, safety lines and pedestrian control.

No special equipment is needed and the paint may be sprayed or brushed on.

Traffic Safety Supply Co., 2636 N.E. Sandy Blvd., Portland 12, Ore. (Item 28)

### Fire Extinguisher Dry Ice Converter

A 150 lb. capacity converter has been developed for use in plants which maintain their own fire extinguishers. The new converter is loaded from the top at waist-high



level, and the full-opening cover is easily swivelled around on its hanger, eliminating heavy lifting. The cover spins open or closed easily on acme-type threads. Full-sized 50 lb. cakes of dry ice may be dropped into the converter without breaking or other extra handling.

No power or refrigeration is required for operation. However, to speed the melting of the dry ice immediately after loading, a hot-water spray ring which will spray hot water on the outside walls of the converter is available.

The 150 lb. capacity converter is ASME approved.

Dry Ice Converter Corp., Tulsa, Okla. (Item 29)

## NEW PRODUCTS

(cont.)

### Automatic Fire Detector and Alarm

The National Fire Protection Association and the National Board of Fire Underwriters have approved this automatic fire locator and fire alarm system.

The system is also available for operation from stand-by batteries in the event of failure of the light and power service for the system. A fire is located by means of indicator lamps on the control panel. Each lamp indicates a zone. Audible alarms throughout the building serve as a warning or evacuation signal to the occupants. The entire system is electrically supervised—should a fault occur in the wiring, the trouble bell will automatically sound until the fault is corrected. Both automatic heat detectors and manual stations are used for fire detec-

tion. The automatic heat detectors are available in two types—the fixed temperature model with a UL rating of 400 sq. ft., and the combination fixed temperature with rate-of-rise feature with a UL rating of 2,500 sq. ft.

New design manual stations are of the single action type for quick and efficient operation. It is recommended that the system be connected to the municipal fire alarm system or to a remote fire station through leased telephone wires.

Edwards Co., Inc., Norwalk, Conn. (Item 30)

### Abrasive Aluminum Tread Plate

An anti-skid abrasive aluminum tread plate is designed for firm footing even when covered with oil, grease or water.

The slip-resistant plate may be

used on bus steps and aisles, marine and printing press catwalks, passenger trains, and truck and trailer floors.

The product is rolled from ingot by a method which provides a fused aluminum abrasive oxide on one surface of the plate. The layer of the abrasive is metallurgically bonded to the aluminum plate. In welding, the abrasive layer does not separate from the plate.

The anti-skid surface is useful on trucks carrying wet cargoes, at industrial locations where oil or ink may collect on floor surfaces, on bridge walkways, etc.

The plate can be shop fabricated by most commercial methods, including shearing, sawing, punching and drilling.

Aluminum Co. of America, Alcoa Bldg., Pittsburgh 19, Pa. (Item 31)

## NEWS ITEMS

The National Dryer Corp., because of its world-wide operations, has changed its name to World Dryer



Corp. The organization, six years old, is located at 616 W. Adams St., Chicago 6.

\* \* \*

The Pyrene—C-O-Two Division of Newark, N. J. has announced the appointment of W. E. Tromanhauser as vice president and general sales manager. Mr. Tromanhauser has been in the fire extinguisher and fire system field for 15 years. He has recently been president of the Buffalo Fire Appliance Corp. of Dayton, Ohio.



Mr. Tromanhauser started with Buffalo in 1940 as district manager, and in 1949 was elevated to general sales manager. In 1950 he was named vice president and general

sales manager and in 1953 was elected president. He will remain a director of Buffalo. He is a member of the National Fire Protection Association.

\* \* \*

C. K. McLeod has been elected president of Walter Kidde & Co. of Canada, Ltd. Mr. McLeod has been associated with Walter Kidde of Canada for 31 years and has served as its managing director and on its



board. John F. Kidde, former president, will remain on the board of directors. Walter Kidde of Canada manufactures and sells marine and industrial built-in fire extinguishing equipment and fire detection devices and ultrasonic burglar alarms.

\* \* \*

Francis D. Holden has been elected vice president in charge of sales for Macwhyte Co. Mr. Holden was formerly sales manager and has been with the company for over 20 years in the general sales and export division. Goodwin Johnston, former treasurer and assistant secretary, has been elected secretary-treasurer.

Byron J. O'Hare has been elected vice president and active head of the Buffalo Fire Appliance Corp. Since



he has been with Buffalo he has held various sales positions. He is a member of the National Fire Protection Association.

\* \* \*

The American Biltrite Co., Chelsea, Mass. has announced that Stuart McKindsey has joined the company in the promotion and development of their line of industrial and safety soles and heels. Prior to joining



American Biltrite he was sales manager for the Gro-Cord Rubber Co. for 9 years.

## How We Hear

—From page 25

other than high intensity sounds, although the shift itself may be then in the order of a decibel or two. One might assume, therefore, that the ear is continually in a state of exposure and recovery, a continuous shifting of auditory threshold. This may be confirmed by the comparison of successive measurements of auditory threshold by audiometric testing.

When all or part of a shift in auditory threshold after exposure to noise remains after an extended period of time, we assume that the hearing loss is a permanent one. The length of time required to regain the pre-exposure threshold following auditory fatigue may be several days or more, although most of the recovery occurs very soon after the exposure. The permanent loss is the amount of shift remaining after complete recovery has been accomplished.

The damage to the hair cells on the basilar membrane as a result of noise exposure appears to progress in stages, with the initial destruction involving hair cells along the outer side of the organ of Corti. The hair cells along the inner side, as well as other structures of the organ of Corti, may be destroyed progressively.

Once established, the destruction of hair cells and other structures of the organ of Corti is permanent in that no medical or surgical therapy is of value. It is a fact that these structures do not regenerate.

Regardless of the theory explaining this phenomenon, the fact that the first signs of hearing loss subsequent to exposure to noise appear as a threshold shift for 4,000 cycles is of great value in early detection of noise trauma.

Continued exposure to noise following initial damage around 4,000 cycles may result in further loss of hearing for 4,000 cycles, in addition to gradual increase or spread in the direction of increasing loss for frequencies lower than 4,000 cycles, until the hearing loss invades those frequencies concerned with the hearing of

everyday speech. It is not until these subsequent stages are reached that the individual with the loss customarily notices any interference with his ability to hear. Thus the onset of noise trauma is an insidious one.

### Damage Risk Criteria

Various levels of noise have been proposed as maximum safe levels below which men may work for extended periods of time without danger of resultant permanent hearing loss, and above which there may be risk of permanent damage of varying degree. Initial attempts to relate hearing loss to a single over-all level obtained with sound level meters have been made by several individuals. Both the domestic and foreign literature abounds in these estimates of a single figure by which safe exposure could be designated. In some instances unquestioning use has been made of these guesses.

It is now apparent that it is not possible to specify potentially damaging noise levels in terms of single over-all sound level meter readings. Because of the nature of the auditory mechanism, both the conductive and perceptive aspects, the frequency spectrum of the noise becomes an extremely important parameter.

Auditory sensitivity is a function of age. This fact is demonstrated in the determination of "normal hearing." As a worker ages his auditory sensitivity is affected, and the nature of the diminution in hearing has been the subject of several studies. It is clear that, on the average, auditory sensitivity as a function of age is increasingly diminished as one goes from 500 to 4,000 cycles. It is also clear that involvement of the lower frequencies, 500 and 1,000 cycles, does not become significant until very late in life, probably not before the usual age of retirement. The higher frequencies, on the other hand, show relatively early effects of age, especially 4,000 cycles.

The necessity arises for some method of differentiating loss of an auditory sensitivity as a result of exposure to noise from the customary effects of advancing age upon hearing. No satisfactory



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## FOREIGN EMPLOYMENT

The Arabian American Oil Company has immediate job openings for qualified candidates for the following classifications:

### FIRE PROTECTION ENGINEER

Engineering graduate with minimum 7 years' engineering experience which includes 5 years in fire protection with emphasis on design, preparation of equipment, specifications, inspection and employee training.

### SAFETY ENGINEER

With engineering degree plus minimum 5 years' experience in engineering and safety work.

### SAFETY ENGINEER JR.

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means of separating the two etiologies is at hand, although certain audiologic techniques are being applied. In the current determination of the extent of hearing loss caused by noise, it is usual to subtract the appropriate number of decibels assumed to be the average loss by presbycusis from the total degree of hearing loss for each frequency.

Hearing loss from noise exposure is thus a double threat: first, the loss itself may be handicapping, and second, its effect is doubly serious when the effects of age upon hearing are added to the existing damage.

Individuals differ in the effects of noise upon their hearing. Some persons have more tender, some persons tougher ears than the average. If, as stated earlier, our approach to the problem of setting damage risk criteria may well turn out to be a statistical one, we should welcome some means of weeding out the persons who fall toward the extreme lower end of the distribution.

Many of the suggested tests of susceptibility are based upon the assumption that the degree of temporary threshold shift is directly proportional to the likelihood of permanent damage. The average threshold shift for a given frequency is determined after exposure to another frequency or band of frequencies. Individuals whose threshold shift is greater than might be expected are assumed to be more sensitive to noise. It is interesting to speculate that the ear which fatigues more easily—with greater threshold shift—might conceivably be engaged in protecting itself from excessive noise in this manner, and may turn out to be less prone to permanent damage.

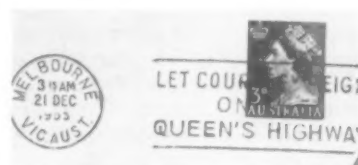
Another approach to the problem of susceptibility is based on the phenomenon of "aural overload." When a pure tone is presented to the ear in gradually increasing intensity, a point is reached at which harmonics of the tone are created by the ear itself, presumably because certain mechanical limits are exceeded. At this point the introduction of a second tone several cycles apart from the frequency of the harmonic produced will result in a

beat being perceived by the persons whose ear is being stimulated. The assumption is made that the ear which overloads early may be a tender or susceptible ear.

**Postmark Slogans  
Appeal for Safety**

POST-MARK SLOGANS have been used in Australia for some years to assist the national road safety campaigns.

The press and radio, in conjunction with civic bodies and the



police, have for years waged a continuous campaign to reduce the toll of the road. But their efforts, though successful to a degree, have barely kept pace with an expanding highways system that carries a steadily increasing number of motor vehicles.

No less than 239,346 new motor vehicles were registered in 1955, bringing the total of all motor vehicles registered in Australia on December 31, last year to 2,413,721.

To help arouse and maintain public interest, the Postmaster General's Department evolved a series of slogans to be used as postmarks.

Two slogans that had an immediate appeal were, "Sane Driving. Safe Arriving" and "Life Is Precious. Help Prevent Accidents."

A more direct but equally effective postmark states: "Stop Accidents Before They Stop YOU."

Courtesy on the road has also been the theme for a number of Australian postmarks. A recent one states that "Road Courtesy Is Catching."

Before the arrival in Australia in 1953 of Queen Elizabeth and the Duke of Edinburgh, postmarks contained this message: "Let Courtesy Reign on the Queen's Highway."

# TRADE PUBLICATIONS

These trade publications will keep you up-to-the-minute on new developments in safety equipment and health products. All catalogs are free, and will be sent without obligation. Just circle publication number on the Reader Service Postcard.



**1. Rolling Doors:** Bulletin No. 79 presents six types: steel rolling service doors, fire doors and shutters, bi-fold doors (steel or wood), steel rolling grilles, sectional overhead doors, special doors. Kinnear Mfg. Co., 1720 Fields Ave., Columbus 6, Ohio.

**2. Asphalt Products:** Three booklets: one lists products for water-dampness-corrosion-protection. Second covers floor and wall products. Third, floorings, tile, cements, coatings, sealers, insulation, binders, floor surfacing. Flintkote Co., 30 Rockefeller Plaza, New York 20, N. Y.

**3. Electrical Specialties:** Catalog 84 describes and illustrates many types and models of switches, lamp holders, and lamp guards. Contains details specifications and cutaway views. Parts and accessories. McGill Mfg. Co., 650 N. Campbell, Valparaiso, Ind.

**4. Switches:** Catalog 83-A features enclosed types. Among those described are limit, explosion-proof, splash-proof, high capacity, general purpose, double-pole, double throw, maintained-contact, pushbutton (hand), and hand-operated switches. Micro Switch Div., Minneapolis-Honeywell Regulator Co., Freeport, Ill.

**5. Oil-Absorbents Dispenser:** Keeping floors dry and non-slippery should be a cinch with the hand dispenser shown in this data sheet. Describes slot-type release that makes dispensing easy, screen top that permits salvaging of absorbents. Oil-Dri Corp. of America, 520 N. Michigan Ave., Chicago 11, Ill.

**6. Ultrasonic Alarm System:** Provides network of protection for entire premises against intrusion at

night. Designed for use with burglar and police-alarm systems, but can be tuned down for localized protection. Even detects air turbulence caused by fire. Diebold, Inc., 818 Mulberry Road, S.E., Canton 2, Ohio.

**7. Portable Fire Extinguishers:** "Fyre-Freez" carbon dioxide units are the feature of this folder. Five models for handling 2½ to 20 lbs. of CO<sub>2</sub> are shown. Discusses operating and servicing; features include "a word about cylinders." Walter Kidde & Co., 145 Main St., Belleville, N. J.

**8. Prefabricated Sound Proof Room:** Has high noise reduction characteristics in all frequency bands. Serves as office or lounge-relief room in noisy areas. Many sizes are available. Dimensions can be changed by addition of panels. Industrial Acoustics Co., 333 Jackson Ave., Bronx, N. Y.

**9. Switchgear:** Metal-clad switchgear for indoor and outdoor use (7.5 and 15KV) is the subject of Bulletin 7004-C. Points out construction, operating, safety features. Drawings of arrangements and layouts. Includes accessories. I-T-E Circuit Breaker Co., Small Air Circuit Breaker Div., 19th & Hamilton Sts., Philadelphia 30, Pa.

**10. Ventilators and Fans:** Catalog No. 180 features portable ventilators, blower-exhausters, and non-cooling fans. Contains application photos, dimension drawings, and capacity tables. Information on hose for ventilators and exhausters. Coppus Engineering Corp., 121 Park Ave., Worcester 2, Mass.

**11. Floor-Cleaning Equipment:** Bulletin covers everything you need for floor care—scrubbing, waxing,

polishing, and mopping equipment; waxes, sealers, and cleansers. Includes handy carry-all units and a water absorber for small congested areas. Finnell Systems, Inc., 500 East St., Elkhart, Ind.

**12. Air Filter:** Here's the story on "Roll-O-Matic," an automatic filter with renewable filtering curtain of bonded glass fibre materials supplied in rolled form. Bulletin 248 discusses construction, operation, installation, capacity tables. American Air Filter Co., First & Central Ave., Louisville, Ky.

**13. Sound Barrier Curtain:** Here's the story on "Bemisorb" transwall curtains for noise control. Bulletin shows they may be used to deaden costly production noise, isolate annoying noise sources, or prevent flame spread. Bemis Bro. Bag Co., 618 South 4th St., Minneapolis, Minn.

**14. Paints:** "Engineered Color" outlines program for applying standard colors using whites, to achieve color plans. Shows color chips of available decorative and heavy-duty finishes. Includes primers, finishes, varnishes. Sixteen pages. Barreled Sunlight Paint Co., 62 Dudley St., Providence, R. I.

**15. Fire Extinguishers:** Dry chemical equipment is featured in this 20 pager-hand, wheeled, low temperature, stationary extinguishers; piped systems; mobile equipment, extinguishers for magnesium, other metals. Tells how to use and recharge. Ansul Chemical Co., Marinette, Wis.

**16. Welding Equipment:** Two pocket-size catalogs No. 3040 shows a line of arc welding helmets, safety hats, goggles, eyeshields equipped with plastic headrest as well as elastic headbands. Catalog No. 1020

illustrates electrode holders, ground clamps, cable connectors, splicers, and lugs. Jackson Products, Inc., Warren, Mich.

**17. Industrial Accident Prevention Signs:** Catalog has hundreds of different standard stock-worded signs shown under the various industrial hazard headings, to warn, educate and impress workers the importance of thinking and acting safely. Ready Made Sign Co., Inc., 115-117 Worth St., New York 13, N. Y.

**18. Explosive Liquid Containers:** Literature shows safety cans for gasoline, oily waste, filling cans, as well as safety lanterns and flashlights, headlights, etc. Justrite Mfg. Co., 2061 Southport Ave., Chicago, Ill.

**19. Industrial Work Shoes:** Catalog of complete line of industrial work shoes that includes steel box toe shoes, molder shoes and spats and blucher style shoes. Harry J. Wolf Shoe Co., 1521 Tenth St., Sheboygan, Wis.

**20. Waste Receptacles:** A catalog illustrating and describing waste receptacles featuring non-rusting stainless steel feet. In addition to standard sizes, special receptacles finished to customers requirements shown. Bennett Mfg. Co., Alden, N. Y.

**21. Athletes Foot Preventive:** A brochure on an antiseptic solution of five beneficial mineral salts that prevents the growth of athletes foot fungus. Non-poisonous, refreshing, it toughens skin and protects feet. Onox, Inc., 121 Second St., San Francisco 5, Calif.

**22. Fire Extinguisher—On wheels** is carbon-dioxide type. Cylinder engine is capped by lever-operated valve which permits immediate discharge. 50-, 75-, and 100-lb. capacity models. Twin 50-lb. cylinders can be operated independently or in tandem. Fyr-Fyter Co., 221 Crane St., Dayton 1, Ohio.

**23. Fire Controls:** Four bulletins are offered on control equipment for guarding against flame failure explosions (12 pages), safeguarding your automatic burner (4 pages), a smoke density indication (4 pages), "Fireye" fire detector (8 pages). Electronics Corp. of America, Fireye Div., 720 Beacon St., Boston, Mass.

**24. Insta-Aid Chart:** B. F. McDonald Co. has brought out a new and completely revised edition of their popular "Insta-Aid" wheel chart.

The device is pocket, or kit size. Symptoms and first aid treatment for 20 common injuries are shown in two windows simply by dialing the wheel to the particular emergency at hand. One side of the chart shows treatment for burns, fractures and other injuries, as well as pressure points for controlling arterial bleeding. The other side shows shock type injuries and gives simple 4-step directions for the approved back-pressure, arm-lift method of artificial respiration. B. F. McDonald Co., 5721 West 96th St., Los Angeles 45, Calif.

**25. Revolving Cup Guards:** A new folder describes revolving cup guards, developed in collaboration with leading grinding wheel manufacturers. It gives dimensions and sizes of both flaring and straight cup guards. Morrison Products, Inc., 16816 Waterloo Rd., Cleveland 10, Ohio.

**26. Exide-Manchex Batteries:** The new line of Exide-Manchex batteries which features increased life and higher instantaneous discharge rates are illustrated and described in this new catalog. A cutaway drawing shows the details of construction, including the heat-resistant polystyrene jar, the support ledges molded into the jar walls from which the battery elements are suspended, and the molded one-piece polystyrene dowels. Listed in the catalog are typical applications in electric utilities, emergency lighting, rural electrification, communications, railway signaling, electronics, laboratories, and industrial plants. Exide Industrial Div., Electric Storage Battery Co., Box 8109, Philadelphia 1, Pa.

**27. Safety Hats:** Bulletin No. 45 describes SuperGard safety hats and caps molded of thermosetting, Fiberglas-reinforced, superior polyester resin. Their inner suspensions are quick-form fitting, resilient polyethylene material—with no metal parts—quick-adjustable to any head size. Because of their "all plastic" construction, only the leather sweatband ever needs to be replaced. They meet federal specification tests for impact, penetration, electrical resistance, flammability, water absorption are fully resilient for life of the hat or cap. The Fibre-Metal Products Co., Chester, Pa.

**28. Crane and Monorail Electrical Equipment:** 12-page catalog describes electrical equipment for cranes and monorail systems, including copper wire, bar, T-bar,

and enclosed conductors. Industrial Crane & Hoist Corp., 1536 S. Pauline St., Chicago 8, Ill.

**29. Floor Absorbent:** A complete listing of 101 different uses for Sol-Speedi-Dri, a mineral floor absorbent, has been published. This piece of literature shows 75 industrial uses of Sol-Speedi-Dri and 26 rather unusual applications around the factory and home. Speedi-Dri Corp., Menlo Park, N. J.

**30. Skin Cleansers:** Catalog describes company's complete line of skin cleansers and dispensers including the new SBS-60 cream deodorant soap washstation and the SBS-30 waterless skin cleanser washstation. Complete information is also given on the SBS line of organic and inorganic powdered hand cleansers which have been offered to both industry and large commercial institutions. Sugar Beet Products Co., Saginaw, Mich.

**31. Fire Equipment:** Bulletin illustrates company's line of fire extinguishers, hose nosels, pumps, fire hose, hydrant connections, and smoke ejectors. Buffalo Fire Appliance Corp., Dayton 1, Ohio.

**32. Safety Floorings:** Fact folder describes a non-skid plastic abrasive composition which resists oil, chemicals, and outdoor weather. Emphasis is put on ease of application, no special materials or tools are required. American Abrasive Metals Co., 460 Coit St., Irvington, N. J.

**33. Silentair Screw Drivers:** 75 per cent less noise on your production line is obtained by the use of Silentair Screw Drivers. A steel sleeve with 24 perforations is attached over the exhaust of any of these Thor No. 2 series straight screw drivers. This sleeve, with its accoustical pattern of holes, breaks up and absorbs the sound of the air motor. Bulletin gives full details. Thor Power Tool Co., Aurora, Ill.

**34. Asbestos Fire Blankets:** Literature shows how these asbestos fire blankets fit in self-storage containers, ready for emergency use. These blankets are available in AA or AAA grade asbestos. Cotton Goods Mfg. Co., 216 N. Clinton St., Chicago, Ill.

**35. Emergency Stretchers:** Bulletin describes these stretchers for first-aid use and which fold for easy storage. The stretchers are made of aluminum, and have rubber bottoms. Washington Products Co., 238 S. Fayette St., Washington, Ohio.

**36. Line Marker:** Four page illustrated bulletin offers specifications and detailed description of an improved line marker. Information concerning other models of line marking equipment also included in the booklet. M-B Corporation, New Holstein, Wis.

**37. Salt Tables:** An illustrated bulletin dealing with the loss of salt from the body due to excessive sweating, and the use of salt tablets to restore the supply. The bulletin points up the dangers of resultant worker fatigue, heat exhaustion and possible accidents. United States Safety Service Co., 1215 McGee St., Kansas City, Mo.

**38. Fume Collectors:** Welding fumes and other irritating fumes can be eliminated from your plant by use of one of the many styles of fume collectors which are described and illustrated in this bulletin. Ruemelin Mfg. Co., 3885 N. Palmer St., Milwaukee 12, Wis.

**39. Safety Hats and Caps:** Bulletin lists seven permanent colors as available, for company's line of safety hats and caps that are adjustable to head sizes from 6½ to eight. Bulletin states that the head gear is made of flame-retardant and water-proof material. Boyer Campbell Co., 6544 St. Antoine St., Detroit 2, Mich.

**40. Lens Cleaning Stations:** Lens cleaning stations are free when you purchase "Sight Saver" tissues. Bulletin states how you can promote eye safety, save time and improve workmanship by putting sight savers at everyone's finger tips. Dow Corning Corporation, Midland, Mich.

**41. First Aid Kits:** Wide variety of first aid kits for general and specific uses covered in this bulletin. Diagrams show how to use various medications and bandages. Pac-Kit Company, 475 Greenwich Ave., Greenwich, Conn.

**42. Watch Clock System:** The complete story of how a watchman's clock works, how a watch-clock system watches the watchman and thereby reduces insurance rates for the user is detailed in this folder. Chicago Watchclock, 1524 S. Wabash Ave., Chicago 5, Ill.

**43. Light-Weight Climber:** A safe, light-weight climber for general maintenance work, window washing, painting, cleaning, sandblasting and other plant maintenance applications are aided by use of the light-weight electric or air-operated Albina Climber is described in this

bulletin. The climber has an 800 lb. preload capacity. The unit travels at 20 f.p.m. to a maximum of 150 ft. and has centrifugal-type safety brakes installed in a drum. Albina Engine & Machine Works, 2100 N. Albina Ave., Portland 12, Oregon.

**44. Industrial Lamps:** Bulletin describes portable lamps that have been designed to throw the right amount of light where it is needed with flood and spot characteristics. The units are available with handles of rubber, phenolic or wood. Heavy steel wire forms a protective cage. McGill Mfg. Co., Inc., Valparaiso, Ind.

**45. Industrial Deafness:** Protection against industrial deafness suits can be yours if you apply the information on audiometers contained in this folder. Audivox, Inc., Department Y, 123 Worcester St., Boston, Mass.

**46. Oily-Waste Cans:** Catalog describes company's complete line of Factory Mutual and Underwriters Laboratories approved oily-waste cans that are equipped with tripod feet and hinged lid (hand or foot operated). Featured is the new Push-Top Lid container. Witt Cornice Company, 2148 Winchell Ave., Cincinnati 14, Ohio.

**47. Lineman's Belt:** Illustrated bulletin outlines the safety and comfort features of a lineman's belt of new design, permitting the wearer to work more efficiently without strain. Miller Equipment Co., 13th & Eagle Streets, Franklin, Pa.

**48. Floor Maintenance Machine:** A versatile floor machine is concisely described and well illustrated in this eight-page brochure, which points out that a single machine can scrub, polish, wax, buff, steel wool, disc, sand, shampoo rugs, (wet or dry), grind concrete, and polish terrazzo. American Floor Surfacing Machine Co., Toledo 3, Ohio.

**49. Cream Deodorant Soap:** This bulletin outlines how a cream type of antiseptic soap eliminates soap waste in washrooms, is economical and reduces maintenance work. Also includes information on dispensing equipment. Sugar Beet Products Co., Saginaw, Mich.

**50. Washroom Deodorizing:** Descriptive folder shows how and where to use Aromatic Vaporizing Cakes for control of odors in toilets, urinals, lockers, garbage, storage rooms, etc. C. B. Dodge Co., Westport, Conn.

**51. Machine Eye Shield:** Illustrated bulletin describes illuminated or non-illuminated eye shields for use on pedestal and bench grinders. Points out that the shields are completely adjustable. Junkin Safety Appliance Co., 3121 Millers Lane, Louisville 16, Ky.

**52. Flame Retardant:** An informative 69-page booklet gives product data on "X-12" flame retardant for use on fabrics and paper. Contents includes outline of the chemicals, physical characteristics, uses, general procedures, applications, testing of treated materials, etc. Grasselli Chemicals Div., E. I. Du Pont de Nemours & Co., Wilmington, Dela.

**53. Cold Immersion Solvent:** A self-emulsifying and self-scouring solvent for decarbonizing engines and components is described in this two-page bulletin. Gives full data on function and uses of the cold immersion solvent, methods of use, and precautions. Curran Corp., S. Canal St., Lawrence, Mass.

**54. Neoprene Soles and Heels:** A concise eight-page booklet describes and pictures four types of neoprene soles that are particularly suitable for industrial shoes because of their resistance to heat, oil and chemicals and their slip-resistant characteristics. Quabang Rubber Co., North Brookfield, Mass.

**55. Insect Repellent:** Protection for field personnel is obtained by the use of insect repellent and poison plant medication discussed in brochure. Packaging information given and it is shown how safety, comfort and efficiency of field personnel may be increased by protecting against insects and poison plants. Medical Supply Co., Rockford, Ill.

**56. Visored Goggles:** Illustrated folder shows several models of light-weight one-piece plastic lens goggles (clear or green) that have an opaque shield across the top to prevent glare from overhead lighting. Jones & Company, 125 Catlin Ave., Rumford 16, R. I.

**57. Sweat Band:** Cellulose sponge sweat band described in folder. Increase in production and safety indicated due to elimination of work stoppages caused by perspiration dripping into a worker's eyes and temporarily blinding him. Sponge is reinforced, and band includes a free-floating self-adjusting, all rubber headband. American Allsafe Company, Inc., 1245 Niagara St., Buffalo, N. Y.



for the emergency you may encounter



*Pocketaire*

## PORTABLE OXYGEN UNIT

Now heart attack patients can be aided on the spot with oxygen from this compact, new inhalator. Just 17 inches high and weighing only 17 pounds, the portable Pocketaire simplifies all oxygen relief and rescue work... permits aid to be given on stretchers or in inaccessible areas.

Rate of flow is regulator-controlled... keeps within medically safe limits automatically. Two standard medical cylinders provide enough oxygen for up to one hour at high flow rate; up to two hours at moderate rate.

Write for free literature or demonstration.

## THE CYCLE-FLO COMPANY

983 BRIDGEPORT AVE. • MILFORD, CONN.

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Wilson & Cousins Co.  
Toronto, Ontario

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Ward LaFrance International  
Elmira, N. Y.

# BURN! PAIN... SHOCK... SPRAY IT!

... the best and safest method  
for the "first aider" because  
he doesn't touch the patient!

## QUICK, THOROUGH, PAINLESS, ASEPTIC...

Doctors agree that certain basic conditions are present in all burn cases. The "first aider" is qualified only to deal with the first three: Relieve Pain, Prevent Infection, Treat Shock. Spraying burns does this best. And the MSCO assortment of Burn Spray Kits is the largest ever offered. Americaine or Kip Antiseptic Oil in either compact Unit-Type Packets with Pressure Cartridge Spray or Complete Burn Spray Kits; Aerosol Dispensers of Foille, Americaine, and Kip; Foille and Hydrosulphosol Burn Spray Kits; Fire Department Kits. MSCO also supplies all standard burn ointments in unit form for first aid kits. See your MSCO distributor or write for details.



*Specialists in  
first aid*

**Medical Supply Company**  
Rockford, Ill. • In Canada, It's Safety Supply Co.

## Advertisers' Index

<b>A</b>	
Alan Wood Steel Co. ....	91
American Chain & Cable Co. ....	65-73
American Industrial Safety Equipment Co. ....	110
American Optical Co. ....	106-B.C.
American Tel. & Tel. Co. ....	85
Ansul Chemical Co. ....	45
Arabian American Oil Co. ....	145
Armour & Co. ....	83
Auto-Crat Mfg. Co. ....	132
<b>B</b>	
Bacharach Industrial Instrument Co. ....	125
Bashlin, W. M., Co. ....	119
Bausch & Lomb Optical Co. ....	71
Boyer-Campbell Co. ....	100
Breck, John H., Inc. ....	77
Brossard, Lester L., Co. ....	121
Buffalo Fire Appliance Corp. ....	54
Bullard, E. D., Co. ....	81
<b>C</b>	
Cardox Corp. ....	53
Chicago Eye Shield Co. ....	I.B.C.
Chicago Hardware Foundry Co. ....	116
Chicago Watchclock Co. ....	60
Colorado Fuel & Iron Corp. ....	92
Columbus McKinnon Chain Corp. ....	89
Coppus Engineering Co. ....	14
Cover, H. S. ....	118
Cunningham, M. E., Co. ....	117
Curran Corp. ....	105
Cycle-Flo Co. ....	59-150
<b>D</b>	
Dameron Enterprises Inc. ....	98
Davenport, A. C., & Son Inc. ....	122
Detex Watchclock Corp. ....	56
Diamond Wire & Cable Co. ....	64
Dow-Chemical Co. ....	69
Dow-Corning Corp. ....	8-9
DuPont, E. I. De Nemours & Co. ....	49
<b>E</b>	
Eagle Mfg. Co. ....	62
Ellwood Safety Appliance Co. ....	108
Exide Industrial Div., Electric Storage Battery Co. ....	99
<b>F</b>	
Falcon Alarm Co., Inc. ....	61
Finnell Systems, Inc. ....	138
Fostoria Pressed Steel Corp. ....	108
Fyr-Fyter Co. ....	51
<b>G</b>	
General Machine & Welding Works, Inc. ....	103
Gilbert & Barker Mfg. Co. ....	57
<b>H</b>	
Halperin, A. E., Co. ....	129
Hansson, Elof, Inc. ....	121
Haws Drinking Faucet Co. ....	127
Hood Rubber Co. ....	67
Hy-Test Div., International Shoe Co. ....	16
<b>I</b>	
Industrial Products Co. ....	114
Ingersoll-Rand Co. ....	113
<b>J</b>	
Jackson Products Inc. ....	75
Johnson Ladder Shoe Co. ....	146
Johnson-Williams Inc. ....	131
Jomac Inc. ....	93
Jones & Laughlin Corp. ....	87
Junkin Safety Appliance Co. ....	115
Justrite Mfg. Co. ....	61
<b>K</b>	
Kidde, Walter & Co. ....	41
Kinnear Mfg. Co. ....	52
Klemp Metal Grating Corp. ....	125
<b>L</b>	
Lightfoot Schultz Co. ....	124
Loss Control Assoc. ....	63
<b>M</b>	
McAn, Thom, Safety Shoes ....	11
McDonald, B. F., Co. ....	112
Medical Supply Co. ....	115-130-145-150
Merrill Brothers ....	126
Milburn Co. ....	90
Mine Safety Appliance Co. ....	I.F.C.
Minnesota Mining & Mfg. Co. ....	123
Modern Machine Tool Co. ....	129
Morton Salt Co. ....	66
<b>N</b>	
National Safety Council ....	133-134-135-136
<b>O</b>	
Onox, Inc. ....	102
Osborn Mfg. Co. ....	137
<b>P</b>	
Patent Scaffolding Co., Inc. ....	97
Prairie State Products Co. ....	110
<b>R</b>	
Rockwood Sprinkler Co. ....	47
Rose Mfg. Co. ....	127
Ruemelin Mfg. Co. ....	105
<b>S</b>	
Safety Box Toe Co. ....	13
Safety First Products Co. ....	58-59
Safety First Supply Co. ....	119
Safety Tower Ladder Co. ....	137
Sani-Mist Inc. ....	109
Scott Aviation Corp. ....	55
Seiberling Latex Products Inc. ....	113
Sellstrom Mfg. Co. ....	94
Silver Troy Co. ....	130
Standard Safety Equipment Co. ....	96
Standard Signs Inc. ....	132
Stephenson Corp. ....	130
Sticht, Herman H., Co., Inc. ....	62
Stonehouse Signs, Inc. ....	5
Surgical Mechanical Research, Inc. ....	117
<b>T</b>	
Taylor, Halsey W., Co. ....	111
Tokheim Corp. ....	114
Tower, A. J., Co. ....	120
Trumbull Mfg. Co. ....	118
<b>U</b>	
U-C Lite Mfg. Co. ....	128
U. S. Envelope Co. ....	88
U. S. Rubber Co. ....	79
U. S. Safety Service Co. ....	7
U. S. Treasury ....	95
<b>W</b>	
Washington Products Co. ....	122
Watchmocket Optical Co. ....	1
West Disinfecting Co. ....	107
Wheeler Protective Apparel Inc. ....	56
Wickwire Spencer Steel Div., Colorado Fuel & Iron Corp. ....	92
Wilkins Co., Inc. ....	101
Williams Jewelry & Mfg. Co. ....	146
Willson Products, Inc. ....	33-34-35-36
Witt Cornice Co. ....	58
Wyandotte Chemical Corp. ....	3

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... the Reader Service postcard will get it for you FAST!

## Here's how it works—

Printed below are two identical Reader Service postcards—the bottom one for your use; the top one for later readers of this issue. The numbers listed on each card are keyed to product advertised and the new safety equipment and trade publications described on

pages 139 through 149. Just circle the items you want to know more about, and we will ask the manufacturer to send you full information without obligation. Both cards are perforated for easy removal, and no postage is required.

## New Safety Equipment

Products featured in this section have been carefully reviewed by Council engineers so as to bring you only what's new and reliable in the safety field. Only new safety and health products, or newsworthy improvements in existing equipment are eligible for listing.

## Trade Publications

Here's a wealth of helpful trade literature—catalogs, spec sheets, booklets, brochures—that will help you compare before you buy. Whether you are in the market now, or think you may be at a later date, you'll want these valuable references in your safety equipment data file.

## Products Advertised

As you read through this issue of the NEWS, you will find advertisements describing equipment that may help you solve some of your accident problems. Instead of making a "mental note," make sure you get full information by circling the corresponding page number on the Reader Service postcard. The letters L, R, T and B locate the ads on the page—left, right, top and bottom. IFC—inside front cover; IBC—inside back cover; BC—back cover.

**IMPORTANT—Be sure to fill in your name, organization and address in the space provided on this side of the postcard.**

National Safety News, July, 1956

Please show company name in full—do not abbreviate.

Please send me more information on the items circled below:

**JULY, 1956**  
(Good until October 31, 1956)

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1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23  
24 25 26 27 28 29 30 31

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1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23  
24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46  
47 48 49 50 51 52 53 54 55 56 57

### PRODUCTS ADVERTISED:

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34	35	36	41	45	47	49	51	52	53	54	55
56L	56R	57	58L	58R	59L	59R	60	61T	61B	62T	62B
63	64	65	66	67	69	71	73	75	77	79	81
83	87	88	89	90	91	92	93	94	95	96	97
99	100	101	102	103	105T	105B	106	107	108T	108B	109
110T	110B	111	112	113T	113B	114T	114B	115L	115R	116	117T
117B	118T	118B	119L	119R	120	121T	121B	122T	122B	123	124
125T	125B	126	127T	127B	128	129T	129B	130TL	130BL	130BR	131
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1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23  
24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46  
47 48 49 50 51 52 53 54 55 56 57

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56L	56R	57	58L	58R	59L	59R	60	61T	61B	62T	62B
63	64	65	66	67	69	71	73	75	77	79	81
83	87	88	89	90	91	92	93	94	95	96	97
99	100	101	102	103	105T	105B	106	107	108T	108B	109
110T	110B	111	112	113T	113B	114T	114B	115L	115R	116	117T
117B	118T	118B	119L	119R	120	121T	121B	122T	122B	123	124
125T	125B	126	127T	127B	128	129T	129B	130TL	130BL	130BR	131
132T	132B	137T	137B	138	145T	146T	146B	150T	150B	IBC	BC

NAME.....

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# *The advertising pages of the News*

## **... your guide to reliable suppliers of worthwhile safety equipment**

The advertising policy of the NEWS requires that all equipment and products meet established codes and standards, have the approval of recognized testing agencies, or have proven their value through actual use in industry. Council engineers and technicians screen every

advertisement to make sure that product description is accurate, and performance claims verified by reliable sources. It should not be construed, however, that products advertised are approved or endorsed by the National Safety Council.

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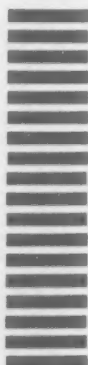
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Before you mail your  
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## **TAKE ANOTHER LOOK AT**

- the ADVERTISING pages
- the NEW SAFETY EQUIPMENT section
- the TRADE PUBLICATION section

Make sure all the items you want to know more about are circled . . . check to make sure your name, organization, and address are printed on the reverse side of the postcard . . . THEN mail it today.

*National Safety News, July, 1956*

# CESCO RIGHT...before your Eyes!

Comfort-Bridge Spectacle-type  
Goggle No. 374



Comfort-Bridge  
Spectacle-type Goggle  
No. 380 with  
Sideshield

## CESCO

### Spectacle-type Goggles

*... for safety, comfort, styling, and durability*

CESCO Comfort-Bridge Spectacle-type Goggles are impact-resistant, strong, and durable. The comfort bridge makes for greater wearer comfort and is an important safety factor. Bridge pads are offered in a choice of rigid or flexible plastic. Sideshield models (illustrated) afford extra protection from objects striking from the side.



Plastic Frame  
Spectacle No. 370



Transparent  
Sideshield Goggle  
No. 385



Other CESCO models which have proved valuable in all types of industrial use are shown. For complete information and prices on the complete CESCO line, we invite you to contact your nearest Distributor.

*Send for this catalog.*

**CHICAGO EYE SHIELD COMPANY • 2306 Warren Boulevard, Chicago 12, Illinois**

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Leather-padded  
Sideshield Goggle  
No. 390

## CESCO



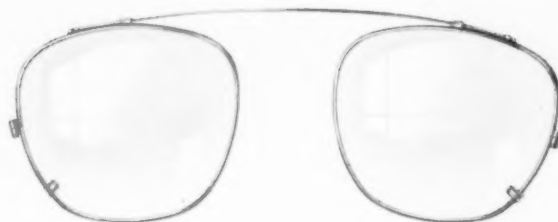
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Specialty Safety Products

Protect your Valuable  
**AO "ULTRASCOPIC"**  
Safety Glasses from  
Pitting and Scratching  
with . . .



## AO FITS-ON Goggles!

To accommodate the P7 or ultrascopic design of AO F5100 (metal) and AO F9500 Series (plastic) safety glasses, we have developed two new

Fits-On Goggles. The clear lenses of Fits-On Goggles can be replaced easily and inexpensively — savings can be appreciable. These goggles are lightweight, comfortable, inconspicuous . . .

they do not detract from appearance and are put on and off in a jiffy. They fit both side shield and non side shield spectacle safety glasses. 4 eye sizes — 42, 44, 46 and 48mm. No. 21W Fits-On is for our F5100 Series, No. 22W for our F9500 Series. Both Fits-On Goggles are available with ground and polished Meniscus lenses, either clear or Calobar. Attractive case supplied.



It's Adjustable!

## AO 372-14 Straightaway Sound Protector

Manual adjustment knob permits wearer to control pressure as harmful industrial noise increases or decreases — a comfort feature. Protector covers jawbone opening. Excellent for low and high frequency noise levels. Durable Neoprene rubber covered metal spring type headband. Dielectric, vinyl sponge ear cups provide complete ear seal. Easily sterilized. Many other features. Write for literature.



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